

# **Little Tern**

## **Portrane 2020**

### ***Sternula albifrons albifrons***

A continuation of the attempt to save their last nesting site in county Dublin

## **Introduction**

When we closed the Portrane little tern project 2019 the volunteers agreed to try again in 2020. It was agreed that we should evaluate the beach for a prospective site in March and April 2020 with a view to erecting the protective fencing at the beginning of May. Despite the erosion that took place at Portrane beach during the winter of 2019 it was agreed that there was an obvious area at the North end of the beach for the little terns to breed. During these observations we all became aware of a new threat to our conservation work at Portrane. It was that of the impact of the Covid-19 pandemic. The government's early policy known as "Lockdown" was to close the site to all but a handful of local observers. Travel restrictions of up to five kilometres greatly curtailed our actions and we doubted if there would be a project in 2020. Thankfully we had encouragement and support from National Parks and Wildlife Service (NPWS), Bird Watch Ireland (BWI), and Fingal County Council (F.C.C.). However the government restrictions in place meant that we could not erect the netting on May 4<sup>th</sup> as planned.

Undaunted by the restrictions those of us who lived within the Portrane area spent many hours observing the site. On May 6<sup>th</sup> I received notification from Jan on that 20 little terns were now at Portrane, but that there was also the usual amount of human disturbance. Observers had noted a number of walkers some with un-leashed dogs walking through the unprotected site. These walkers were unintentionally disturbing the colony and the little terns started moving on. Providentially I received a call from Hans Visser (F.C.C.). It would be through the intervention by Hans that an attempt to protect the little terns of Portrane in 2020 would commence towards the end of May. It was expected that 2020 would prove to be too difficult to warden and so we had little expectation of fledglings. However *Sternula albifrons albifrons* or little tern would again prove to be intriguing, challenging, surprising and informative. I wondered if any of our IZies and IXies from 2018 would return and take their place as breeding birds at Portrane? What unfolded in 2020 at the North end of Portrane beach during the latter days of May through to the final week of July added another chapter to the conservation of little terns in Dublin.

## **2018 Little Terns**

When our 14 fledged chicks departed from Portrane in August 2018 we had no idea whether or not if any would survive to return to nest successfully. We hoped that if any of them returned we might learn more about little terns through observation. The list of 2018 birds returning to the east coast of Ireland in 2020 would include IX0 IX1 IZ0 IZ2 IZ5 IZ6 IZ7 IZ8 and IZ9. Because of the number of sightings of some of these birds we are fairly certain that IX0 IX1 IZ5 IZ6 and IZ9 did not nest in 2020. IZ7 only arrived at Portrane quite late the season and it is possible that it

nested somewhere else. Prior to the erection of the netting IZ8 was located with a partner at the North end of the beach. Despite its attempts to nest what we believe was human disturbance caused IZ8 to move north to nest at Baltray Co Louth. We have had no reports of any of our little terns visiting Kilcoole but their numbers prohibit an accurate survey. When Jan Rod visited Baltray Co Louth he spotted IZ8, a female, nesting. We have no information regarding the success of IZ8's first attempt at breeding. We noted that as the season progressed other little terns arrived on site. They included IX0 IX9 as a prospective pair. Through observation we concluded that IX0 IX1 are females and that IZ6 IZ7 and IZ9 are males. We could not determine the gender of the other birds. Being able to identify the gender of several birds from 2018 has added to the knowledge of what we are about at Portrane and it is hoped that we can continue to do so in the future.

Since 2018 we noted that after the last nest was put down we always had a number of birds flying about looking like they too were about to nest. Similar in appearance to the breeding little terns these turned out to be non-breeding birds. They would fly over the site in groups of three. They always announced their arrival with what I refer to as a trumpet call. This behaviour was observed at various times throughout the day. On occasion the birds would land within the site for a very short period, usually less than 30 seconds. Landings were also noted at the shoreline at high tide. Normally one of the three carried a fish and initiated a behaviour that mimicked part of little tern courtship. However as soon as the fish was presented the prospective recipient would take off. A most definite refusal to nest. The 2020 season was no different in this matter, however we now had ringed birds to observe. With this information we hypothesised that what we were looking at were inexperienced birds. We now refer to them as "teenagers".

My limited observations of the nesting process revealed that whilst most nesting pairs take some time becoming established others seem to settle into the process shortly after their arrival. There is an opinion that little terns are monogamous, however whether an established pair remains intact until the death of one of the parties is unconfirmed. Due to the ringing in 2018 we were able to observe IX0 being courted by IZ9 in 2020. If this "pair" should return to breed in 2021, accurate observations may offer more clarification on little tern partnerships vis a vie early nest establishment, long term bonding, and success as a breeding pair.

## **The Site**

Compared to the 2019 site it was obvious that we had lost about twenty metres of shingle from the eastern side of the site in 2020. The previous 2020 spring tides together with wind action had created two ridges on the eastern edge. We noted that the most easterly outer ridge was breached by tides greater than four meters. This ridge was situated between the external blue rope fence to the east of the site and the eastern side of the netting. Fortunately no little tern nest was established in this area. Therefore the tidal inundations were never a threat. The inner ridge was more noticeable to the northern end of the site. Generally the northern half of the site was of higher elevation and I believed that any nest established within this area would be safe from any tidal inundation. The inner most ridge sloped downwards into a dip and then gently rose towards the western side of the site. Throughout the project this ridge area was

generally avoided by our chicks and adults alike. The shingle narrowed as it extended northward from centre of the enclosed area.

There is no doubt that the beach at Portrane is undergoing a significant change in structure and thus the breeding site available to the little terns is at risk of disappearing. The West of the site still has a dune system containing marram grass whose extensive systems of creeping underground rhizomes helped stabilise the dune system. It contained low lying areas as well as a number of ridges containing various shoreline plants. Much of the north end of the site contained stands of marram grass and although the adult birds appeared to avoid this when nest prospecting the chicks used the area for shelter from both the weather and predators.

## **Portrane beach and site**

The most northerly area of Portrane beach is classified as a Special Area of Conservation (SAC) and a Special Protection Area (SPA) National Parks and Wildlife Service (NPWS). It is thus a protected area by law. The area also falls within the jurisdiction of Fingal County Council (F.C.C.) and is also protected by their bye-laws. At high tide the area becomes a peninsula with The Burrow to the West and Rogerstown outer estuary. The outflow of the Ballyboghil and Ballough rivers are the main two feeders. There are also Bride's Stream, Jone's Stream and Baleally Stream feeding the estuary. They flow from the Northwest and feed a deep channel to the sea to the East.

This year because of the pandemic there was less traffic in and out of Rogerstown harbour in the form of yachts, canoes, rowing boats and motorised ribs and other craft. There was little impact upon the colony by this traffic, however canoeists, swimmers and paddle boarders who crossed over from Rush did impact the colony during the incubation period. The brooding birds would rise to investigate but after about two minutes they settled again. The disturbance declined once the chicks had hatched. There were a number of drones this year that overflowed the site. They had minimum impact on the colony, however if they had been at a lower altitude they may have been a greater disturbance to the colony.

This year an area of shingle beach was cordoned off with 2 meter poles 10 meters apart. Netting in 50m lengths were attached with the base of the netting buried beneath the sand to discourage predators. The site's length was 300 meters north-south and 25 meters at its widest East-West. The signage attached was informative and served Bird Watch Ireland (BWI), BWI Fingal, NPWS, and F.C.C. A number of signs were strategically placed asking the public to maintain a 10 metre distance from the netting. Despite the signage the public did not stay 10m out from the netting. It was very apparent that walkers and their pets were a significant disturbance to the colony. Because of the narrowness of the site any dog leashed or otherwise passing by, caused the colony to rise. It was proposed to erect an outer ring to the eastern side of the site 15m where possible to counteract the disturbance. A temporary fence was erected with posts 10m apart that were linked together by 2 strands of blue nylon rope. The top rope was 1m from the ground and the bottom strand about 20cm from the ground. For future reference this worked as the walking public were now a further 15m from the nesting terns. Nests L0220 and L0320 were quickly established as a result of this work. When the restrictions eased, blackboards were located at both the northern and southern ends of the site. The idea

of a notice board had been discussed at the beginning of the 2018 project. We had used them in 2019 but their true impact was revealed during the 2020 project. The blackboards were updated regularly to give a concise report on the colony's development. The blackboards functioned extremely well as the public at large seemed to be drawn to them. Usually the passing public would stop for a short period and depart with a wave or a thumbs up. This behaviour was in sharp contrast to the informational signage which was generally ignored by the public.

## **The Bird and its history in Ireland**

A Little tern adult average 21-25 cm in length and have a 41-47 cm wingspan. *Sternula Albifrons* *Albifrons* has been recorded in Ireland by Usher and Warren before the early part of the 20<sup>th</sup> Century. They noted that the largest colony in Ireland had over 50 pairs "known to nest". Later Kennedy, Ruttledge and Scroope noted that little tern colonies were small and were up to 25 "little terns breeding" and that perhaps the species was in decline. However they did record a colony of 40 to 50 pairs in County Wexford. Today little terns are probably the rarest breeding tern in Ireland. Post the 2019 project I visited Tory island in Donegal and during a discussion with local birder Anton Meenan discovered that a pair of little terns had attempted to nest near the lighthouse at the western end of the island. In 2004 Pickerell cited in Cabot and Nisbet (p136, 2013) estimated that there were 206 breeding pairs in Ireland. This number for certain has increased and I estimate it to be approximately 350 breeding pairs in Ireland this season. However their reproductive strategy places them in perilous situations ranging from inundation by the sea, loss of habitat, human and canine disturbance, natural predation and parental skills.

There are written personal accounts of little tern breeding attempts at Portrane beach since 1990. From 1990 to 2017 it is probable that chicks did fledge at Portrane, however the total number is likely to be no more than seven. Prior to 1990 it is likely that the environment at Portrane was unsuitable for breeding. There are accounts from the 1970's that little terns nested to the south of the Island Golf Club. There are also records of them breeding on the north end of Bull Island. Sadly these sites are no longer being used for breeding purposes. The nest sites at Portrane are typical in that they are a bare scrape in the shingle. Little terns usually have between one and three eggs but on rare occasions four. There is a direct link between the incubation period and the number of eggs being incubated. However our experiences in 2020 adds a caveat to this statement. Inexperienced breeding birds do not always get it right and thus their immaturity may contribute to a delay in incubation time. Our observations in 2020 revealed a wider spectrum of incubation times than in 2018. Ehrlich et al suggest that incubation periods vary from 18 to 21 days. This year however I have records of 22 day incubation periods. We are fortunate to have a small colony and these observations are not too difficult to collect. Interestingly Ehrlich et al suggest a general fledgling period of 19 to 21 days but add a cautionary "(15-18)" possibility. This year's fledglings IV0 to IV5 were most definitely in the 15-18 group whereas IV7 and IV8 were 21 to 22 days. We can safely discount food supply or weather as influencing factors. Portrane has more than enough sand eels, shrimp and other small fish for both the colony and other tern species that visit.

## **The Plan unfolds**

Having had the experiences of 2018 and 2019 we were better informed as to how to go about the business of little tern conservation in 2020. The review of the 2019 project included a proposal that the fencing and signage should be installed on the Monday of the May bank holiday in 2020. 2020 was almost the year that wasn't for the wardens of the little tern colony at Portrane Co Dublin. Those wardens who lived close to Portrane were able to observe the site in late April and early May. When we were asked for a site map by Hans Visser, the local wardens were able to produce a GPS map of the site. This map was then edited to show the enclosure for the posts and netting. It also contained the locations where the different signs were to be placed. This was done at the request of Fingal County Council (Hans Visser) for the hired contractor. With the assistance of the hired contractor and a small number of volunteers and Hans, the enclosure was completed by May 16<sup>th</sup>. That evening Elena reported that she had seen a pairs of little terns scraping at the southern end of the site as well as the northern end. Alongside our little terns were our ever present ringed plover, skylark and meadow pipit nests. We had a rough count of 9 ring plover nests inside the net with a further 9 nests outside of it. The skylarks (5 nests) were located in the dunes together with the meadow pipits (unknown number). We speculated that our 1<sup>st</sup> little tern egg would be laid between the 23<sup>rd</sup> and the 30<sup>th</sup> of May.

Prior to 23/05/2020, 9 pairs had been prospecting on the beach including IZ8 a Portrane bird from 2018. I had contacted both the Kilcoole project and the Baltray project in mid-May to see how they were coping with the pandemic restrictions. These projects were also having restriction issues but their specifics in both location and access permitted them the early erection of their sites. The Portrane project depended entirely upon volunteers many of whom were in the government's "cocooning group" and were therefore advised to remain at home. Most of those who had previously volunteered for the project lived beyond the travel limit set out by the authorities. They were thus confined to their locality and unable to assist us. Despite the restrictions Portrane beach was still a busy space for walkers and their four legged friends. With no fenced off area the little terns that had arrived in early May moved on and many found a quieter site at Baltray Co Louth. On May 22<sup>nd</sup> I received a permission to travel document from F.C.C. I was looking forward to getting to the beach the following morning and I pondered the forthcoming weeks.

A roster for wardening was started on May 23<sup>rd</sup>. This year thanks to the efforts of Rima Pojarkoviene an online spreadsheet was developed for viewing online. After testing it was added to the BWI Fingal's website online by Paul Lynch. This new innovation enabled any volunteer to see the roster online and therefore see where they might enable maximum cover. I must say that this year's volunteers surpassed themselves in their generosity and commitment. This year saw the majority of volunteers commit to regular slots for the course of the project. This greatly reduced the level of administrative work.

The following week our 1<sup>st</sup> nest L0120 with 2 eggs was established. We estimated that L0120 would hatch on or about the 19<sup>th</sup> of June. From my daily observations it was obvious that the nesting site enclosure was too narrow. It should be noted that constant disturbance of colony makes for anxious or nervous terns and they will either abandon breeding or seek an alternative site. I bought some posts and Paul Lynch brought the blue nylon rope. Together with Elana Erro we erected a partial external fence on May 30<sup>th</sup>. This fence was completed the following week. June 2<sup>nd</sup> saw nest L0220 it had 3 eggs due 23rd. Our third nest was completed by June 5<sup>th</sup> L0320, 2eggs.

This year Portrane beach had an abundance of ringed plover pairs with approximately 18 nests with 2 sites with 3 eggs and the remaining 16 with 4 eggs. Prior to the 23<sup>rd</sup> of May there had been a high tide that had come through the east side of the netting. It was noted that two plover nests had sitting brooders when they were surrounded by the incoming tide. Despite the inundation and to our surprise both nests produced 4 chicks. There were also 5 skylark nesting sites and numerous meadow pipit nests throughout the dunes. The mortality rates for ringed plover chicks was very high this year. At the close of the project there were still some plover chicks about. The NPWS has asked us to consider expanding our project to include the ringed plover. I am of the opinion that currently we do not have the resources to cover this work. I would recommend a separate project group that would interact with the little tern project. The ringed plover nesting site would more than double the current little tern site's area. This would create a number of issues that include administrative work, separate roster, a much larger fenced area, greater restriction to public access, particularly at low tide and more wardens to protect the site. The behavioural habits of ringed plover chicks are such that at low tide 4 wardens would be required to provide adequate protection.

It was noted on June 15<sup>th</sup> that L0420 was under construction complete on the 17<sup>th</sup> 3 eggs. June 19<sup>th</sup> saw the arrival of our 1<sup>st</sup> little tern chick. It was first sighted at 16:17 shortly afterwards it was fed for the first time. The behaviour of both adults had altered during the previous days. We speculated that the parents might be able to hear their offspring inside the eggs. The adults were opening and closing their bills but there were no audible sounds. Electronic recordings together with video recordings of future such happenings might reveal more about what is going on. Both chicks would fledge the beta chick was ringed as IV5. L0220 started hatching on June 23<sup>rd</sup>. They were ringed as IV2, IV3 and IV4 on the 24<sup>th</sup> L0320 began hatching and on the 2<sup>nd</sup> July they too were ringed as IV0 and IV1. We once again had the privilege of Jen Lynch who visited us on 2 occasions. The first occasion we had targeted our first seven chicks. A good number of volunteers came to assist in this exercise. Earlier that week Jan had suggested that we insert thin colour coded sticks at intervals to act as reference locators within the site. I agreed with his suggestion and the sticks were inserted earlier that morning. We located the five youngest chicks with some difficulty. We eventually located the other two chicks however one of them disappeared in the long grass and went un-ringed. Later that evening all of the chicks were accounted for. June 28<sup>th</sup> and the 29<sup>th</sup> saw the construction of L0520 2 eggs. Nest L0420 hatched over a 3 day period from June 6<sup>th</sup> to June 8<sup>th</sup>, they were ringed as IV7, IV8 and IV9 on July 14<sup>th</sup>, the second day of ringing. It took us less than 50 minutes to catch and release

the chicks. On the 17<sup>th</sup> all 3 chicks were seen however on the 18<sup>th</sup> the alpha chick IV9 was missing presumed predated. However Jan found the body on the 2<sup>nd</sup> of August in a clump of grass 2 meters from where it had been born. Our nest L0520 was established on June 29<sup>th</sup>. The parent's behaviour was normal. When the alpha chick hatched at 12:15 on July 19<sup>th</sup> we were upbeat and relieved that we were having a successful season. We noted that the parental female was I17 Baltray 2014 and that the male was un-ringed. The beta chick hatched at 12:50 on the 20<sup>th</sup> of July. We predicted that the closing date would be August 6<sup>th</sup>. This tragically was not to be as both chicks were to perish within 2 days of hatching. Despite an abundance of food the parents were unable to feed either chick. Time and time again both parents delivered either fish of inappropriate size or in the wrong manner. The pair simply did not know how to feed their chicks. For many of those wardening the slow death of both chicks was a difficult experience.

This episode raised many issues around the deaths of these chicks. It can be argued that our presence on the beach is an intervention in itself. What if we had attempted to hand feed these chicks until they were large enough to consume the fish the parents were bringing in? I am not aware of any attempt to hand rear little terns. I am not sure such a practice would be advisable. At what point do we say "no further" and let events take their course or alternatively do we take the view that we must all in our power to preserve a specie.

This year the threat from Jackdaw *Corvus monedula* was replaced by rook *Corvus frugilegus* and hooded crow *Corvus cornix*. The rooks and hooded crows were persistent and unwelcomed visitors throughout the project. On a small number of occasions rooks landed inside the enclosed area and it took our wardening to drive them out. Shortly after L0120 had been inserted an adult rook landed less than 5m from the nest. I ran towards the brooding adult, other little terns were diving at the intruder but were having little effect. I blasted the horn and shouted. The intruding rook turned and rose and the adult little terns closed in pecking and screeching. Suddenly a common tern *Sterna hirundo* joined in, pecking at the head of the rook. The intruder fled, dodging the allied terns in hot pursuit. As experienced in our previous projects ground predators were a serious threat to ground nesting birds. Walking corvids know that this practice gives them an edge over ground nesting terns. This year we continued the policy of harassment of corvids throughout the dunes and I believe we were fairly successful in curtailing their threat. Raven *Corvus corax* were also present and were more of a nuisance than they had been in previous years. We had several close encounters with common buzzard *Buteo buteo*, sparrowhawk *Accipiter nisus*, peregrine falcon *Falco peregrinus* and of course kestrel *Falco tinnunculus*. If we thought that our kestrel difficulties of the past were problematic then the kestrel nest of 2020 was an upgrade.

We had been informed that both jackdaw and raven had driven off 2 kestrel nesting pairs from the Portrane area. However the informant was not aware that a new nest site was about a 1½ second flight from our site. Shortly after the first ringed plover chicks had hatched the female kestrel would appear over the north end of our site. Her approach was unseen and mysterious. The kestrel nest's location was discovered by accident by Jan one evening when he overheard the chicks calling. Once located we altered our wardening strategy to cater for and to curtail the attacks. The local kestrel pair had 4 chicks to feed and I'm of the opinion that most of the ringed

plover chicks within our bailiwick fell prey to them. The 9<sup>th</sup> of July was an eventful day. I can't emphasize the danger any distraction is to wardening. Following an interview with Derek Mooney for the radio programme Mooney goes wild, our neighbourhood kestrel performed a stoop from high above the golf course. We had just driven her away from the dunes and we had been tracking her as she moved northeast. Through my binoculars she was a dot, she turned and plunged headlong towards the northwest corner of the site. We ran to intercept but we were too slow. A large ringed plover chick was snatched and the kestrel sped away upriver. The forlorn pursuit by plovers and little terns was in vain. From our observations 2 of the kestrel chicks were male and 2 were female. All four fledged and seemed to disperse with the arrival of the juvenile peregrine. I am of the opinion that had we not been present at the site most of our little tern chicks would have been lost to kestrel predation. The juvenile peregrine gave us a few days of terror but we held firm.

## **The breeding little terns of 2020**

At the beginning of May 2020 I had a number of phone calls with members of the 2019's wardening team including Paul Lynch. Morale was high but the knowledge that without the fencing it would be impossible to have a successful nesting season. I informed Paul that I had received phone calls from BWI, NPWS and F.C.C. and that both Kilcoole and Baltry were going ahead. Due to the travel restrictions imposed by the government it was my belief that it would be impossible to warden the 2020 Portrane project. A handful of volunteers who lived locally were able to give regular updates regarding the numbers and dispositions of little terns at Portrane.

Jan reported that there were 20 little terns at Portrane on May 6<sup>th</sup>. As we have discovered little tern numbers are linked inextricably to the time of day and the height of the tide. May 7<sup>th</sup>'s count by Elena in the evening saw 10 adult birds. There were many other sterna off Rush point and 2020 saw 100's rather than 10's of terns feeding off Portrane. We speculated that due to the lack of dredging by trawlers this year had created a larger than normal food supply. Common, roseate and little terns took advantage of this bounty off the beaches of Rush and Portrane.

I found that not being able to get to Portrane to be quite frustrating. Jan reported that on May 12<sup>th</sup> there were 18 adult little terns scraping in or about a section of beach that looked suitable. On May 13<sup>th</sup> we were informed that the 1<sup>st</sup> egg had been laid at Kilcoole. The adult count at Portrane was down to 7. The birds were moving on because the human and canine disturbance was too much. I speculated that if the netting and signage were not put up immediately then there would be no little terns breeding at Portrane 2020. As stated earlier we provided an edited GPS map of where the nesting site and passed it to Hans Visser. The contractor with the aid of some volunteers installed the fencing on May 15<sup>th</sup> and 16<sup>th</sup>. It was noted that 12 little terns were present on the 15<sup>th</sup>. During the week that followed the number of terns decreased. I received the news that I would be given five "travel for work" permits. These would give five more volunteers the ability to be on the roster.

We agreed to insert some wavin pipe strips, decoy little terns, and a trail camera. We later moved this camera and installed a second camera to give better site coverage. When I arrived

on the beach on May 23<sup>rd</sup> at 08:30 and noted that small numbers of sanderling (13) and dunlin (40) were still migrating north. I had 2 individual little tern sightings for most of the day. At 16:58 a pair flew over the southern side of the site for about 3 minutes. The number of little terns stayed low but on the 25<sup>th</sup> two pairs were observed at 16:49 but for most of that day there was the eerie silence of their absence. By the 27<sup>th</sup> however things were improving. At 10:40 a pair were observed close to the river initiating courtship. Because of the lack of little terns that day I was able to focus upon their behaviour. From 10:40 until 11:05 the male fed 5 fish to the female. At 11:14 the pair separated and the male returned at 11:15 with a fish which was accepted. The same process was repeated at 11:16, 11:17. At 11:20 a 4<sup>th</sup> fish was presented and accepted. The pair then sat about 60cm apart. There was no audible chatter but there was some head movement and beaks opened and closed. At 11:33 the male took off followed shortly afterwards by the female. She flew into the site and was joined at 11:38 by the male who presented her with yet another fish. The pair moved to the tide line at 11:40. At 12:53 having been flushed by an unleashed greyhound and its owner, the pair flew over the site and then back out to the last remaining sandbar where they renewed their courtship. The female returned to the site at 13:20 to where L0120 would be located. At 13:45 a third fish was delivered this time the sitting adult stood up and ate the fish. The male took off and the female sat down again. This was repeated again at 13:56. Both adults were on the tide line at 14:20. At 14:52 both returned to L0120's location. At 14:54 both returned to the tide line. The male took off and returned with food at 13:55, 14:59, 15:02 and again at 15:04 however the female refused to eat and the male ate the fish. Shortly afterwards a walker disturbed the pair. Both birds returned to the site at 15:40. At 15:50 an adult presumed the female sat on L0120. From my recorded observations the female had been fed 17 sand eels. There would be two eggs in L0120 both would hatch and fledge. This partial observation of a breeding pair might indicate the volume of fish required by a breeding female. It has been noted that in little and least terns the weight of a single egg is equivalent to 18% of the bodyweight of the female bird (Cabot and Nisbet, p68). Further investigation is required to ascertain what if any are the differences between tern species in time period and methodology of egg formation. Each egg contains 10% fat, 15% protein, and 75% water (*ibid*).

The following day we had more issues with unleashed dogs and their owners. Exposed eggs are an attractive feast for corvids and any gull species. The erection of an outer ring fence became an imperative and it was constructed due to the events of the final week of May. The following day the corvid interest in the site continued however there were more little terns and another 2 pairs were prospecting. At 11:35 I noted that I could hear a pair copulating. This sound I had identified and confirmed with John Lovatt during the 2019 season. I eventually found the pair and confirmed that they were in fact a second pair. They would produce L0220 with 3 eggs that would also fledge. During this period a number of prospecting attempts were made in the southern section of the site. The incumbent nesting ringed plovers objected to such an extent that the little terns didn't nest at the southern end. A visiting IK2 (male) with its partner was one such pair. IK2 took great interest in our decoy little tern but it was noted that IK2 at first kept between its partner and the decoy. It was only after it had pecked at the decoy that was reassured that it wasn't a threat. Later L0520 would nest 70cm from the second decoy at the northern end.

Travel restrictions were being eased and more volunteers were able to assist the project. This

year we were able to provide warden coverage for about 13 hours per day by two wardens or more. The Spring tides of early June had no effect upon the colony. By June 4<sup>th</sup> we had 3 breeding pairs. As usual we checked the nests to count the eggs. We took advantage of any disturbance that put up the colony to check the nests. This year L0120 had 2 eggs when checked initially. A later inspection by Jan and myself saw the insertion of a stone at the nest. It was similar in size to the eggs and we speculated as to the reason for the insertion. Was it accidental or was it more comfortable to sit upon 3 than 2.

Later on June 4<sup>th</sup> we had a very persistent visitor at 14:35 in the form of a buzzard that glided slowly above the western edge of the site. The little terns responded with what I described as a "respectful attack". The 1<sup>st</sup> year buzzard was escorted north away from the site. Despite the inclement weather the public numbers were on the increase. The blackboard updates were read by most of the passing public. On occasion conversations were exchanged at a distance and we were encouraged and thanked for our efforts.

On Tuesday the 9<sup>th</sup> of June I observed an egg shell being removed from the ringed plover nest in front of our observation post. At 10:26 the sitting adult picked up the shell and moved about two metres to the left and then went out through the netting. The other adult was nearby and the wet chick was clearly visible. The returning adult was back within the minute and covered the chick.

Thursday the 11th of June saw the construction of L0420. Again it was to our left within the northern end of the site. Barney Johnson brought down some sheeting that he miraculously turned into a shelter. I for one was grateful for this construction as it saved me from a drenching on many occasions. The kestrel continued its foraging around the site and the route of the sparrowhawk was noted. I noticed a change in the behaviour of both adults from L0120 on the 15<sup>th</sup> of June. For periods of the day the second adult sat close to the nest. The sitting adult seemed uncomfortable and on occasion would reach underneath with its beak as if to reset the eggs. Two days later, the non-incubating adult walked about picking up very small pieces of shell and flicking them away. This behaviour had been noticed before but it was not analysed. This year this behaviour was observed at 3 nests prior to hatching. This behaviour needs to be recorded and investigated further. We speculated that the behaviour may be an indication of movement within the egg. On the 19<sup>th</sup> of June we saw or 1<sup>st</sup> chick being fed at 16:17. It was probably hatched within the previous hour. The incoming small fish was presented head first and was consumed with ease. Saturday the 20<sup>th</sup> saw the arrival of the second chick. Two of the kestrel chicks had also fledged and were now in practice mode. By Sunday the little tern chicks were occasionally refusing food. It looked like food would not be an issue again this year. It was noticed that the behaviour of L0220's adults had changed on the 22<sup>nd</sup> of June. The first chick from L0220 arrived before 07:00. The second chick hatched before 09:30. By the following day the first egg hatched from L0320 and the third from L0220. By 15:45 the second chick hatched from L0320. It was a beautiful sunny day and we now had 7 chicks and 3 eggs. At 17:15 a sparrowhawk soared with ease southward high above the site using the sun for cover. At 17:43 I could hear a little tern pair mating and I speculated that we might be later at Portrane than at first thought. At 17:43 the sparrowhawk returned northward again with menace. I observed a chick from L0120 flicking pieces of grit from the beach on the 26<sup>th</sup>. Monday the 29<sup>th</sup> confirmed L0520 with 2 eggs. It was located about 70cm from the decoy bird at the north end of the site. It was noted that plenty of fish were being delivered to the chicks.

who were well concealed within the grass area. We made arrangements with Jen Lynch to ring our seven chicks on July 2<sup>nd</sup>. IV0 to IV5 were used as we were yet again unable to catch one of the chicks from L0120. A single chick from L0120 IV0, L0220's three chicks IV1 IV2 IV3 and finally IV4 IV5 for L0320. The food continued to be delivered with ease. By July the 4<sup>th</sup> we had 3 chicks flying about inside of the net. The clearing behaviour by the non-sitting adult was noted at L0420. Interestingly after a change over the exiting bird also did some flicking. L0420's first chick hatched on the July 6<sup>th</sup> and was spotted by Paul O'Flaherty on the evening shift. The second arrived on the 7<sup>th</sup> but it wasn't until the morning of the 9<sup>th</sup> that I confirmed the third chick. From my notes on July 7<sup>th</sup> an adult flew in with a fish at 08:40 it was refused by chicks. The adult flew to the shore defecated and returned to the site offering the fish again. Again it was refused so adult ate the fish itself. It was July 9<sup>th</sup> and we now had 10 chicks and RTE presenter Derek Mooney was due. The menace of the kestrel returned with a vengeance that afternoon. A large ring plover chick was taken late in the afternoon. Buoyed by this success she returned circling on high and stooping, but we held firm. The following day she returned again. This time a dot in the sky she dived from far above the golf course. She snatched a ringed plover chick from the north end of the site. There was a vain pursuit by plovers and little terns but this was to be her last success from within the site.

By July 11<sup>th</sup> we were getting visits from the other little tern colonies. On July 13<sup>th</sup> at 17:49 an un-ringed pair were observed mating at the shoreline. The 14<sup>th</sup> saw the return of Jen Lynch to ring the 3 chicks from L0420. We managed to complete the task in less than an hour. We now had IV7 IV8 and IV9. Sunday the 19<sup>th</sup> of July at 12:15 saw the first chick from L0520. Adult male offered the chick a large sandeel. There was a concern that IV9 was missing and after an intensive search we concluded that IV9 (alpha chick) may have been predated sometime between the 18<sup>th</sup> and the 19<sup>th</sup>. There was another attempt to feed the chick from L0520 at 19:38. Despite the chick pecking at the black mark on the adult's bill the adult did not respond to the chicks need. This action seemed similar to juvenile gulls pecking at the gonys spot of its parent. I watched carefully the adults from L0420 as they fed IV7 and IV8 at least eight times each throughout the day. There was no sign of IV9. The July 20<sup>th</sup> at 12:50 I saw the second eggshell from nest L0520 removed. Our last chick had hatched and we predicted that we might finish on August 8<sup>th</sup>. I reflected that we had achieved a first in that all of our eggs had hatched. We were definitely failing better and our collective efforts were enabling positive outcomes. Fate however was to intervene and a new threat was added to the list.

I had never considered that inexperience and/or bad parenting skills would be a cause for the death of little tern chicks. The concerns about our efforts being either a failure or a success returned in 2020. This year 9 of our charges took flight whilst three others succumbed to the vagaries of nature. It is doubtful whether anything we could have done would have altered these vagaries. The project offers those who warden the opportunity to observe closely these and other events. I have reflected on many occasions that my private observations of little terns are subjective. What I observe no matter how many times is a perception of reality and not necessarily an accurate perception. An example of this was that until the 2020 season based upon my previous observations I was of the opinion that little terns were "Good parents". Good parents achieve successful fledging through their parental care.

When does parental care begin and are the skills necessary for the protection and fledging of chicks inherited, instinctive or learnt? The first question may be easier to answer in that from

my observations little terns engage in the parental process with the commencement of incubation. I was of the opinion that parental abilities were instinctive and inherited. I now believe that it is more likely to be learnt. The successful incubation of the nest requires teamwork that is consistent and equitable. Cabot puts forward a belief that as adult terns get older their experiences at breeding improve. There is a simple logic to this belief and it is easy to accept. How significant is age in the success of breeding. The colour ringing scheme that we in Portrane are part of will in time give us a better understanding of this species breeding cycle. When I started my involvement with little projects the consensus was that little terns returned after two years to breed. Within large or “super-colonies” individual tracking is impossible because of the sheer volume of birds. In Portrane however the breeding pairs are more manageable. In 2018 we put 13 rings on our chicks. Nine of these were sighted at some location within the Irish Sea in 2020. It is possible that two of these birds nested but we have no observational data to prove this. The two birds in question were observed early in the season and again at the end of the breeding cycle. The other 2018 birds were sighted towards the end of the cycle.

The physical condition a returning bird is in may influence its breeding ability and the number of eggs it can support. Are those pairs that are older and/or in better condition more likely to produce larger clutches? Conversely do younger inexperienced birds lack the physical strength or knowhow to produce at a similar rate. This may explain our L0520 loss. In 2020 little terns that arrived late in the season spent a number of weeks flying about displaying and even mating on occasion. They were behaving as if they were “teenagers”. Perhaps they were practising for the 2021 season. If they return again next year we will have an opportunity to gather more data.

Our observations at the initial laying show that the initial egg/eggs are left unattended. I am of the opinion that the female initiates brooding. We have deliberated that until we had observed a changeover at the nest site we should regard the egg laying process to be incomplete. This season's observations have only added support for this hypothesis.

The food and foraging conditions at Portrane for 2020 were different to the previous years we wardened. Because of the Government's Covid-19 restrictions from March there were far less fishing boats dredging the waters off Portrane and Rush beaches. As noted earlier, the beginning of the 2020 breeding season saw a much larger number of *Sterna* feeding close to Portrane and Rush beaches. We also noted that the sandeels also appeared to be larger during this period. Whether there was a correlation between these two events is unproven. We may at least remark that one may be an unintended consequence of the other. Whatever the reason the *Sterna* from Rockabill and Portrane seem to benefit from a larger supply of food than normal.

With the exception of a re-nest in 2018 all of our nests to-date have had either had 2 or 3 eggs. From our data records the Portrane colony seems capable of producing a clutch size greater than 2. This is in all probability due to an abundance of food close to the colony site. At Portrane the hatching period of 2 egg nests vary, but all nests have hatched within a 24 hour period. Our observations revealed that nests with 3 eggs take longer to hatch and on occasion have taken up to 48 hours to complete. There is little evidence to suggest that weather conditions have any negative impact at Portrane. Despite this year's inclement weather we cannot say that our losses were due to the cold or dampness. It is my opinion that Portrane's

success is due to its proximity to an abundant food source.

## **Statistics of what is success**

Year	2018	2019	2020
Number of breeding pairs	11	18	5
Number of eggs	27	44	12
Number of nests lost	9	17	0
Number of eggs lost	22	41	0
Number of re-nests	6	3	0
Number of re-nest eggs	12	5	0
Number of re-nests lost	1	3	0
Number of re-nest eggs lost	2	5	0
Total eggs laid	39	49	12
Total eggs hatched	15	3	12
Total eggs fledged	14	3	9
Total chicks ringed	13	2	8
Mortification of chicks	1	0	3

NB. Figures for 2018 are based upon an estimation of the original nests lost added to the actual output.

How should we review and reflect upon the 2020 project? The support of BWI, F.C.C. and the NPWS was critical to the positive outcome of the project. Without the thousands of hours our volunteers contributed to the project it is likely that we would not have had another 9 fledglings for our records. We must also acknowledge the public support that we receive and that without this support we would have a very different outcome. This year five nests were established. They produced 12 chicks from 12 eggs, 9 of whom fledged. That is a 75% success rate. Whereas 2019 had 18 nests plus 3 re-nests that produced 49 eggs. Of these 46 were lost to predation. The 3 eggs that hatched went on to fledge which is a 6% success rate. I have estimated that from the 11 established nests plus the 6 re-nests a total of 39 eggs were laid. The 14 fledged chicks represent a 36% success rate for 2018.

During the past 3 years of wardening our presence alone has enabled the little tern colony to establish itself. I am convinced that human disturbance has been the main reason for colony failure in the past. However once the colony has been established other perils come into play. In 2018 we had jackdaws, kestrels, a dog and storm Hector all take their toll upon the colony. In 2019 it was the turn of foxes which did incredible damage. 2020 also had its own unforeseen misfortune. There is little doubt that little terns live a precarious life and that without our help they will not survive as a breeding species in county Dublin.

## **Conclusion**

Portrane little tern project has once again seen the majority of eggs that hatch, fledge successfully. Without the wardens to protect the site the beach would be devoid of breeding little terns. We can say with some certainty that we have had some success in 2020. As in 2018 the effort in time and resources could possibly be measured against the outcome. The learning experience, the shared social capital, the observation data gathered, the 12 hatched chicks, the 9 fledged chicks and the plans for the future can be considered when taking these measurements. We were unfortunate that the resources were not available for the critical first two weeks of May. The misfortune and negative impact of the Covid-19 pandemic that prevented the construction of the site and its wardening was a critical in keeping our breeding numbers low. It is hoped that 2021 will be a less stressful time and that the winter storms will leave a breeding site for little terns. An earlier breeding time may also give us a start on the breeding sparrowhawk and kestrels and so reduce the stress of their visits. I would be very hopeful of a shorter successful project next year.

Finally, my gratitude to the people of BWI Fingal who asked me to participate in this project and for their support. To participate in the protection and preservation of our heritage is indeed a worthwhile privilege. To the public who despite the inconvenience we caused to their leisure time thanks for your curiosity, acceptance, cooperation and toleration. Without this we would surely have failed. To the agencies, Fingal County Council, National Parks and Wildlife Service and Birdwatch Ireland thank you for your resources, support, and approval. Most importantly to Hans Visser without who's help we would surely have never got started. The volunteers, you came, your efforts protected our charges and once again gave hope for little terns at Portrane. A motley crew, your commitment, enthusiasm, and resolve made possible a shale full of wonder. Because of you there are 8 IVies, and our eldest who was too elusive, to be ringed. It is a wish that some of the 2020 chicks might return to breed sometime in the future and continue their species.

## **The motley crew**

Barney Johnson, Brendan Black , Jim (Chick) McNally, Cormac Crowley, Elana Erro, Jan Rod, Jen Lynch, John Lovatt, Jim English, Niall Griffen, Niall Harmey, Catherine O'Connor, Derek O'Brien, Gary White, Michael Keating, Pat Lynders, Paul Hanna, Paul Lynch, Jim Malone, Rita O'Sullivan, Karen Jones, Paul O'Flaherty, Sandra White, Steve Newton, Niall (Neil) Harmey, Tom n Maureen Carroll, Hans Visser, Rima Pojarkoviene, Hubert, Daniele Gioppo, Hannah Preston, Paul Scully, John Stone, Ronan Toomey, Lorraine Bull, Pat McBride and my humblest apologies if I've left you out.

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O'Connell, D. P<sup>1'2</sup>, Power. A<sup>1</sup>, Doyle S<sup>1</sup>, Newton S. F<sup>1</sup>, Nest movement by Little Terns (*Sternula albifrons*) and Ringed Plovers (*Charadrius hiaticula*) in response to nest to inundation by high tides.

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