

PART II - SUPPORTING DOCUMENTATION

Part II of the report includes a major section entitled: **Background and History of Balscadden Bay** where local residents outline their personal experiences and enjoyment of Balscadden Beach down through the years.

I - Background and History of Balscadden Bay

- **Reminiscences of Laurence Hudson**
- **Conversation with Nicky Mc Loughlin**
- **Personal Reflection of Swimming at Balscadden Beach**
- **Newcomer to Swimming at Balscadden Beach**

This is followed by a section outlining the activities, vision and goals of FOBB:

II - Vision and Goals of Friends of Balscadden Bay

- **FOBB Activities**
- **A Vision for the Bay**
- **What is needed? -Short-Term**
- **What is needed? Medium-Term**
- **What is needed? Long-Term**
- **Current Situation**
- **Cliff Erosion and Recent Landslide**
- **Legal Issues**

Finally we enclose three Appendices covering :

III - Appendices:

- **A - Howth SAAO - Cllr Cian O'Callaghan**
- **B - Input on Geology of Balscadden - Cllr David Healy**
- **C - Research Paper**
- **D - The Bay as an educational resource and teaching tool**
- **E - Future impression of the bay by local Artist - Ciara Ní Laoi**
- **F - Promotional Flyer for FOBB**
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I - Background & History of Balscadden Bay

The following accounts are memories of two local elderly gentlemen who remember Balscadden Bay the way it was during their childhood years. You the reader will be transported back 70 years and more when Ireland was not a wealthy country then but the local natural amenities were utilised for the benefit of the people for leisure and also employment.

You will see that although Ireland prospered much since that time that in many other ways we have allowed it to regress. One of the gentlemen **Laurence Hudson** has died only recently but his reminiscences are recorded for the UCD Delargy Centre for Irish Folklore by Criosoir Mac Carthaigh.

The second account is by **Nicky Mc Loughlin** who is a very well known and respected resident of Howth. His family go back generations living in Howth and again his memories are recorded here word for word as he dictated them. Nicky is an avid and passionate swimmer who has been swimming daily with many friends in Balscadden Bay for the past 70 years and is also an active member of FOBB (Friends of Balscadden Bay).

• Reminiscences of Laurence Hudson :

These recollections were recorded for the UCD Delargy Centre for Irish Folklore by Criostoir Mac Carthaigh.

Laurence talks about the sheltered bay of Balscadden, where there were three separate swimming areas open to the public – the beach, the swimming pool and Fitzgibbons deep water cove.

The beach on Balscadden Bay was known as “Ladies Beach” as Lady Howth and her mother used to swim there. Indeed, they were taught to swim there by Laurence’s own grandmother.

He recalls nostalgically how the beach on a sunny weekend day resembled Hollywood, with the amount of people congregated there, swimming and picnicking. After swimming you could get a meat tea for a shilling and sixpence, or tea and scone for a shilling in the Dalriada Hotel (now the site of the Asgard apartments). He laments how the beach has now fallen into disuse.

The Dalriada hotel belonged to a barrister named Higgins, who passed it on to his niece, Maimie Lavery, who was married to Benny Reid. They had a woman looking after the bathing huts, and a man keeping the beach clean. For three pence you could get a bathing costume and a dry towel.

[Note: According to Vincent Mc Brierty (The Howth Peninsula), the Great Northern Railway(GNR) Company built the railway to Howth, with the first trains arriving on 30th May 1847. To encourage use, first class ticket holders were provided with changing cubicles on Balscadden Beach]

They also owned the outdoor swimming pool at the nearby Stake Rock on Balscadden Bay. There was a small charge for using the pool, collected by Harry Murray, who had a hut on the path above the steps down to the pool. The deepest part of the pool was just over six feet. Seamus Rickard was one of the great swimmers there at the time.

Next to the pool, on the other side of the Stake rock was the deep water swimming area known as Fitzgibbons ("Fitzers"). It got its name from Judge Fitzgibbon who lived in the nearby Kilrock House, and who swam here with all his family. Indeed the small pedestrian gate direct from Kilrock House to Fitzers is still visible. There was a diving board there, as there was also on Ladies Beach.



Dalriada Hotel and Bathing Place at Balscadden Bay

• **Conversation with Nicky McLoughlin, 29/09/10 :**

“My memories are going way back (I was born in 1934). When we used to walk across with the family, we used to walk across Tower Hill and straight through the land that is now fenced in recently. It certainly went through where the area that has been blocked off now, and down to the beach.

There was no such thing as to walk around the side close by the fence that you have to do now [the recently altered right of way since the latest fencing was put up]. It means no-one can go by with a buggy or that now, and only single-file. We used to have picnics on the beach.

On the rocks at the far left, there used to be a pool called the Cobbler's Pond where we used to hook a few small fish. It was up to our knees. At real low tides, the fishermen or lobstermen would go with hooks and wade out and pull in lobsters with their hooks. That place was used by the fishermen for years and years. My grandfather and great grandfather did herring fishing in there.

I fished with PG McLoughlin doing drift netting. Once we anchored our net and went ashore for a break, half an hour later we came back and there were 3 or 4 boxes of herrings caught. There were almost no seals to be seen then, only off Lambay.

The deeper water brought the seals in. The fishermen were throwing some fish in so the seals prospered.

About the right of way, they used to use the right of way all the time. You always got a tide in Balscadden. The only time there was a problem, a fellow called Carr who bought the Asgard hotel put a wall up and stopped us going down, from the road down to the beach. So they had to start using the cafe and pay sixpence to use it. Instead they would go round the rocks on the left side and get in for free.

All the locals started doing this. So for maybe 7 years or so, the right of way was blocked off, until he sold it to Lavery who sold it on again. He held dances but wasn't so interested in the beach and so he opened back up the right of way.

My recollection is that the corporation put in the steps. The corporation did that to make the right of way proper. 25 years ago, I remember one of the chaps called John Tappins who was one of the Estonians who came in with a boat called Devolo. He had nets out for herrings. He hauled the herring nets in having anchored them there. My father used to do drift netting out by the Nose of Howth. There was always great herring fishing in that bay.

The time Carr had it, that's when I remember they put out a pontoon in the water for swimmers to swim to and jump off. We had instructors that used to come out from the lifesaving association of Ireland and give classes on a Wednesday at 7 o'clock. They ran for years. That would only have stopped about 25 years ago. Carr was the first one to kind of put a claim on the beach. People weren't strong enough then to oppose it. He only blocked it off so he could charge for people to use the cafe.

Then the pool opened over at the stake. I was president for about 15 years. We used to have a race between the pool and the beach and back. Some walked back by the road if they were too tired. Fitzgibbons Rock – there was always a cottage up there owned by Drumm – they charged an annual rent for kids to use it. When I took over, we told them it was a right of way and we weren't going to pay anymore, it was for the people of Howth and they accepted that. That pool was built over 70 years ago. What happened once was the outside of the pool fell away and we had to bring down cement and fill up the hole. We put a pipe out with a valve so we could fill and re-fill the pool from sea water as needed. We had bathing shelters down there. Louis Carbina built them with blocks. We got sand and cement and when the members came down, everyone had to carry a block down each when they were coming down the path! We had to use salt water with the cement but it worked out grand.

We had great times there. We used to have annual swims. A fellow called Ivan O'Shea always won the race. I decided to start off doing a sponsored charity swim.



Fitzser's Bathing Place with the Stake Rock in the foreground.
Balscadden beach in the background.

Gerry Daly was as good as any Olympic diver – he used to dive off the top of “Old Smokey”, which was the top rock of Fitzers, maybe around 35 foot high. Eddie Hearn was the Olympic swimmer and he would go over with him. After that they used to start going over to Blackrock baths. John O’Reilly and his brother Martin used to dive off that rock even at low tide.

They used to be black and blue from the big belly-flops they would do. Gerry Daly was the best diver that I’ve ever seen. He wouldn’t make a ripple when he hit the water, he’d go in without leaving a trace. There was also “Small Smokey”, a smaller jump in the same area.

Every time we swam from Fitzgibbons, we always headed down to the beach and back, that was our target. The lifesaving classes were all done on the beach, everybody locally would have taken them. They finished maybe 30 years ago. They were a great crowd that came out and gave the lessons. We also had a swim inside the harbour, the “harbour race”, swimming from the harbour to the slip. We had annual swims in the harbour. It used to include all the clubs around Dublin. A great swimmer called Gerry Boland used to swim it. Paul Healy used to be a strong swimmer too.

The island swim always used to finish in Balscadden. I remember one of the best swimmers came to Howth, he was leading the field but he got washed out a bit towards the nose and only came in 2nd. Mick Giernan and his brother Cyril used to swim there. That was always a landing place for the race.

My mother used to go down to Balscadden Beach and pay a penny for the changing room huts. She used to swim there going way back. She was born in 1894.



Balscadden Bay with Bathing Huts for changing.

How the hell can the apartments claim that they’ve been given the beach? It seems Justice Defoy gave the apartments a claim to everything above the low-water mark. I’ve never seen the embankment collapse before it happened in 2009. That always held together. People used to carry small 12 foot fishing boats down the right of way to Balscadden beach.

There's always water in Balscadden so it's always good for swimming. I spoke to a teacher there today from Collins Avenue school who told me there's about 30 schools that make regular trips there for geology and geography classes."



Watching water-skiing, enjoying a swim & sunbathing at Balscadden Bay 1960's

• Personal Reflection of Swimming at Balscadden Beach

The following is a reflection written by a local man born and reared in Howth (off Balscadden Road) and spent his childhood summers swimming at Balscadden Bay.

The Beach

"A cool blue light filters down from above. The sea is calm today, only the gentle sway of the kelp betrays the ebbing tide, the fronds reaching up like fingers as they try in vain to grasp the light. Deeper down, the wreck of AMOW 2, once visible from the road is now indistinguishable from the rocky outcrop which stretches east from the old hotel. Time has not been kind to her. Once her bright yellow hull shone like a beacon from beneath the waves, but now masked by wrack and thong-weed, she lies broken by 20 years of winter storms. From one of the remnants a crab emerges to cross a sand patch in search of food, its blend of scurry and swim like ballerina gliding across a stage. A glint of silver in the water column injects a sense of urgency but he crosses safely. It's shallower here, the tip of this rock just breaks the surface, the wrack hangs loose, already turning golden under the afternoon sun. Anemones grasp their last morsel before closing up until the sea returns. A shag settles on the rock and opens up its wings to dry, but gazing constantly down. The water is clean, clear, and full of life. It will feed well today.

Another day and a seemingly different world. North easterly winds drive the rain almost horizontally along the seafront. Few dare to walk the east pier today as one by one the waves spill in to the harbour. Over at the beach the clear still waters have been replaced by a murky grey mass. On the southern side of the old slipway the stones emit a constant roar as wave upon wave plunges down and the retreating water drags them seaward. Out beneath the waves the kelp is no longer gently swaying. Today it is being thrown furiously this way and that. An occasional branch succumbs to the pressure and is flung far up on the beach. No crab will dance over the sand today. They have sought shelter in the deepest crevasses and beneath the biggest rocks hoping to ride this one out. Some will survive, but many will be crushed and smashed as their shelters are torn apart by the raging seas. The limpets

tighten their grip as a lost lobster pot passes by, tossing and tumbling dragging the frayed ends of the hauling line, the weights unable to anchor it against the driving seas.

But the storms will pass, and before the sea settles down once more the people will return. This is a special place, and those who visit will return not once but many times. It is a spiritual place too, where the families of those who were of the sea, gather on their passing to bid a final farewell. This is not a private place, but a public place for private thought. This is where sea tells its tales, close your eyes and hear tales of courage and of love, tales of gun-running and of pirate queens. This is not just a beach. This is a special place. If you haven't done so before, go there. Sit by the shore and listen, and if you feel brave take the plunge and look for that crab."



FOBB Summer Swim & BBQ on Balcadden Beach 2010

- **Newcomer to swimming at Balcadden Beach**

"I moved to Howth in 2004 and have been a regular sea-swimmer locally ever since, mainly at Balcadden Beach. It's a wonderful place to swim, in terms of natural scenery and mostly calm waters and just a minute's walk from the main Howth village where I live. I feel it's vital we preserve and maintain this beach and access to it for the good of everyone in the community.

There is a healthy social scene centred around this beach, with a number of older members of the community meeting at midday for a swim here every day of the year. Better maintained and with better facilities such as benches, clothes hooks and life-buoys, this could benefit quite a number of people in the area.

Wild life is also an important feature of this beach – I myself have often seen seals and sometimes porpoises swimming close to the beach.

Perhaps the apartment owners would have us believe that Balcadden Beach isn't really used and shouldn't be given any special help. But the reality is that over the course of any given day many people drop in and enjoy the beach. e.g. Scuba divers, swimmers, dog-walkers, frequent school trips (examining the geological features and natural composition of the beach), sun-bathers and families.

The erection of a metal gate at the top of the steps has bothered me a lot as it's like a threat of closure hanging over our heads. The gate is designed to be lockable and indeed has been locked for a number of weeks over the last year while works were being done on the Balcadden apartments. Many a time I see visitors to Howth who having seen the wonderful vista as they come up Balcadden Road, encounter the prison-like gate and simply accept the strong "Keep Out" message it silently puts across to them, along with its red warning sign. This is wrong - visitors to Howth should not be intimidated into avoiding what is a

Right of Way open to all. While a walk down the pier does provide a view out over the sea, it is at a remove, while walking on Balcadden Beach brings one closer so you can smell the saltiness, pop seaweed bubbles as you step on it, examine the cliff wall and caves that have been millions of years in forming and even dip a toe or take the full plunge.

This beach is a wonderful resource that should be cherished, nourished and kept open to all. Instead it is under threat of closure or development by the Balcadden apartments, has had tonnes of concrete and earth dropped on it by a reckless neighbour (and all of this is still sitting there as a blight on the beach a year later) and receives regular deposits of empty beer cans, nappies and other rubbish left by antisocial elements. So it needs more care to be taken of it i.e. insistence that the neighbours above remove their rubbish from it, that the council or apartments maintain the steps properly and that the 'bunker' at the top of the steps be filled in lest it continues to attract flies."

II - VISION AND GOALS OF FRIENDS OF BALSCADDEN BAY FOBB Activities

Friend of Balcadden Bay was formed in 2008 and since then have organised multiple clean ups of the beach at regular intervals throughout the year. FOBB also organise social and fun events on the beach which are well attended.

In 2009 our major event was 'A Community Fun Splash and Picnic on the Beach' and this year FOBB organised a 'Community Swim & BBQ on the Beach'. It has been a tradition to have a Community Christmas Day Swim at the beach and FOBB is proud to continue with this each Christmas.

Last September FOBB introduced a Community Swim in honour of a well known local gentleman who died last year. This gentleman swam regularly at Balcadden Beach until he passed away at the age of 90 years.

All these events are well attended by young and old alike and really help to bring the local community together and allow visitors to better enjoy the area. Everyone gets better enjoyment of this beautiful place by having fun together. For the more stout hearted there are a regular group of swimmers both local and visiting who swim at the beach on a daily basis all year round.

A Vision for the Bay

Some members of FOBB would like to see this area enhanced by incorporating a pedestrian walkway from the south end of the east pier around the outer side of the apartments onto the beach. Others visualise this walkway continuing on at the other side of the beach along the side of the cliff taking the pedestrian up to the Right of Way that leads onto Balcadden Road where they can continue their walk to join the lower cliff path around Howth Hill.

Some dream of having an Interpretative Centre within the vicinity of the beach, displaying all the information and history of Howth for the visitor to see. Perhaps a café or tea room, incorporated within the Centre, would provide the visitor who has walked the cliff path or had a refreshing swim to have a well earned rest and sustenance. Many believe that such additions would make the area more accessible and attractive and bring more visitors to Howth which in turn will have a knock on effect of bringing additional employment to the area.

Since the redirection of the sewage pipe out of the Nose of Howth the water quality of the bay has improved immensely and FOBB would like to see that within the next few years the beach will qualify for a blue flag. It was confirmed by the Senior Resident Engineer of the Dublin Bay Project that the pipeline was commissioned on 27th October 2010 and discharge of sewage to Balcadden ceased on that date.

• **WHAT IS NEEDED SHORT-TERM**

First and foremost the Green fence and gate at ROW access to be removed.

Short-term improvement of the right of way to the beach by immediate repair of the steps and handrails installed.

The Right of Way across Tower Hill (as mentioned in Nicky's memories) to be reinstated **as it was** so that there is wheelchair and buggy access directly from the village centre over to Balcadden.

- Install a sign for Balcadden Beach at junction of Harbour Rd. and Abbey St. and also a pedestrian sign for beach on Abbey St. where the entrance is to the Martello Tower.
- To install 2 sealed frames for lifebuoys on the beach.
- Benches/seats and bins installed on the beach.
- To provide proper recycling bins to be located in the bunker space at the top of the steps to help users of the beach to recycle and dispose of their rubbish properly.

FOBB would like FCC to work with us to include the cleaning of the beach as part of their litter control and thus give employment to someone locally.

• **WHAT IS NEEDED MEDIUM – TERM**

Right of Way to be further improved by making it wheelchair friendly to enable everyone including mothers with buggies to have access to the beach and enjoy this beautiful place.

- Legal Issues resolved. (See paragraph on page)
- A floating pontoon to be installed in the bay that can be removed during the winter months.
- The cement platform and bank areas cleared and collapsed debris removed.
- To install a storage container/shed on platform (there was a building there before) to hold swimming and lifesaving gear.

FOBB wish to see the beach life-guarded during the summer months with swimming and lifesaving classes reintroduced for the benefit of the community.

• WHAT IS NEEDED LONG-TERM

The existing jetty to be rebuilt with a ladder installed on it.

The right of way to Fitzer's to be reinstated so swimmers can have access to the rock for diving and be able to swim to the beach and back as was done years ago.

For the purpose of diving we want a diving board and ladder to be re-installed on Fitzer's.

A board walk to be built at the south end of the east pier around the outer side of the apartments along the embankment to join the cliff face taking the pedestrian up to the Right of Way onto Balscadden road, where they can continue their walk to join the lower cliff path around Howth Hill.

• CURENT SITUATION

There is a green fence and gate which was recently erected by the Asgard residents Association to stop locals and visitors using the right of way to the beach. This has made the entrance to the beach look like it is out of bounds. It also obscures the lovely view of the beach and certainly has put off tourists and visitors to the area from going there



There is a bunker at the top of the Right of Way inside the green fence which has always been used as an open waste disposal area for rubbish picked up from the beach. During the hot weather this attract flies, wasps etc and gives off a foul smell if rubbish has been there for even a short period of time. Again this often discourages visitors from using the access, and they just walk past.

• CLIFF EROSION AND RECENT LANDSLIDE

FOBB is concerned about the landslide that occurred last year onto the south end of the beach. This happened following a very heavy rainfall. The landslide was the actual back garden of a house that subsided which is believed to have been due to an excessive amount of topsoil that had been placed there by the house dwellers.



• LEGAL ISSUES

While we welcome the confirmation from Fingal County Council of the existence of a Right of Way onto Balscadden Beach, and that they will resist any attempt to close it, we are nonetheless concerned about the overall legal status of the beach.

We acknowledge that the land between the road and the beach is owned by the management company, on behalf of the residents of the Asgard apartments.

However, a recent court judgement may have also transferred the ownership of the beach to them, notwithstanding that lands under the high water mark belong to the State.

We would welcome the assistance of FCC in clarifying the scope of this judgement, and in particular, in confirming that the beach is not included within the lands transferred.

Appendix A – Howth Special Amenity Area Order - Cllr Cian O’Callaghan

The Howth Special Area Amenity Order (SAAO) details the importance of Balscadden Bay in geological and visual amenity terms. It states that: *"some of the most sublime sea views are from the road around Balscadden Bay."* The order also notes that the geological fault that runs across the Howth peninsula is *"best seen at the crags and quarries above Balscadden Bay."* There are four sites specifically listed around Balscadden Bay of special geological interest (sites 32-35) showing; *slumps in Cambrian rocks, a major fault, fractured limestone with fossils and Quaternary Ice Age sediments.*

Objective 1.4 of the Howth SAAO (p.30) is as follows: *"To develop the beach in Balscadden Bay as an amenity area"*.

Policy 1.4.1 is: *"The Council will carry out an amenity improvement plan for Balscadden Beach."* Neither of these objectives are currently been implemented by Fingal County Council.

Appendix B – Input on Geology of Balscadden – David Healy

Balscadden Beach is a County Geological Site designated by the Geological Survey of Ireland and recognised by it as a good teaching site.

A new genus and species of colonial rugose coral from late Tournaisian (Waulsortian) mud-mounds in Ireland: Its ecological associations and depositional setting .

The beach is formed in the historic earthquake fault between the 500million year old Cambrian formation which makes up most of Howth Head and the Carboniferous limestone overlying it which make up the bedrock for most of the Dublin area and indeed most of the centre of the country. The fault area has a bedrock of “fault breccia” (visible at the south end of the beach) which has been heavily eroded and filled in with sand and gravel deposits from the last Ice Age.

Here after is an article by Ian Sanders about the geology of Howth and Balscadden Bay & Howth.

“How to Get there : DART to Howth Station and then 10 min walk Eastwards past the Yacht Club in direction of the Martello Tower. When you reach the King Sitric restaurant at the landward end of the East Pier, turn right up a steep road (Balscadden Road) past a modern apartment block on the left, and high poorly vegetated embankment (supporting the Martello Tower) on the right. Bus No.31 (direct to Howth village) or 31b (scenic route via Howth Summit). Car parking is available on the East Pier (below the Martello tower).

Geological horizon : Cambrian, Lower Carboniferous & Quaternary. What to see : faulted rocks, limestone, geological deposits.

Duration : 1 hour or little more.

Notes : Access is possible at any state of the tide, though half tide allows more to be seen in Balscadden Bay.

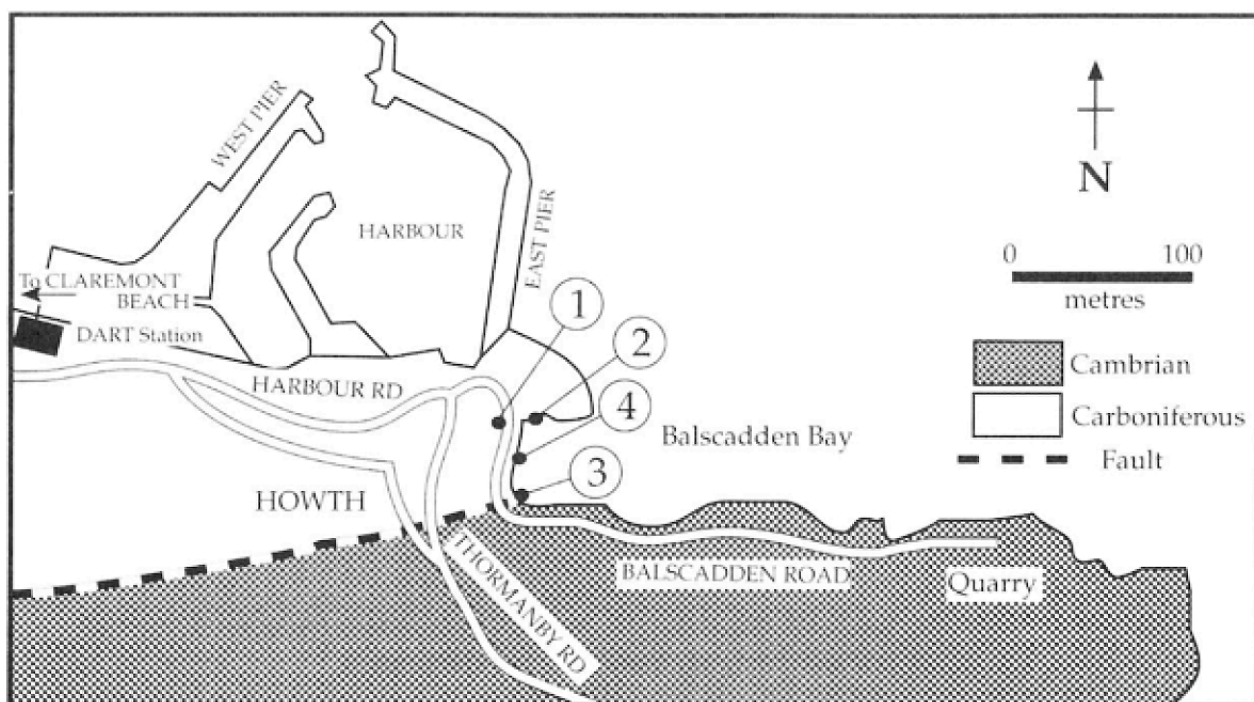
The Howth Peninsula is composed of rocks of two ages. To the South, Cambrian quartzites, sandstones and mudrocks form the higher ground and can be seen in the cliffs and rocky foreshores. To the North,

Carboniferous limestones lie beneath the lower ground and crop out in a few coastal and inland exposures. The two groups of rocks are separated by a fault the eastern end of which is exposed in Balscadden Bay, immediately to the east of Howth village. The western end emerges on the coast just south of Sutton Dinghy Club. Quaternary boulder clay, sand and gravel form deposits up to several meters thick resting on the older Carboniferous and Cambrian rocks in many places.

Balscadden Bay makes an excellent “first geological visit”. In one small area it is possible to examine all three main groups of rock : Quaternary, Carboniferous and Cambrian, that occur on the Howth Peninsula.

Stop 1 : The embankment opposite the Balscadden Road apartments. Observe that the embankment consists of buff-coloured sandy and pebbly material. These pebbly sands are believed to have been deposited towards the end of the last ice age. At that time Howth (and much of the rest of Ireland and Britain) was buried under a thick sheet of slowly moving ice, much as Greenland is today. The ice engulfed the original soil, stones and loose rocks in its path and carried them forward. With climatic warming, about 14,000 years ago, the ice sheet melted and the stony and muddy material embedded within it was dumped as an unsorted layer draped over solid bedrock. This unsorted material is known as boulder clay or glacial till. Meltwater from the ice formed temporary rivers which eroded the loose boulder clay, transported it and redeposited it further downstream, possibly as a delta where the river entered a lake or the sea.

Roughly horizontal layers, some with more pebbles than average, can be seen over much of the



embankment. These layered sands and gravels are material that has been transported and redeposited. The material near the top of the embankment, however, is not layered and contains some large boulders of rock. This is typical unsorted boulder clay. The presence of boulder clay on top of sorted sands and gravels suggests that the ice sheet first retreated, and the meltwater deposited the sands and gravels. Later the ice seems to have advanced again, over the sands and gravels, and when it finally melted the upper layer of boulder clay was left behind.

Stop 2 : Foreshore below the apartments. Gain access down the concrete steps through a gate nearly opposite the sports club. On reaching the beach, turn left (North) and examine the rock exposure below the

apartment block and (if the tide is low) beyond it- though take care since the seaweed covered foreshore is extremely slippery.

The rock here is grey limestone. It can be scratched by steel, and it fizzes if dilute acid is dropped onto it. These features distinguish limestone from other grey rocks. When acid is added the chemical reaction is :



Look carefully at the steep rock surfaces above the high tide mark and you may notice the protruding edges of fossils. Fossils may also be seen on the wave-worn surfaces. Do not try to remove them; they will only break up. Please leave them for others to see. Fossils may be found, and collected, from among the grey limestone pebbles on the beach.

The fossils are the shells and skeletons of organisms which lived on the sea floor in Carboniferous times, about 340 million years ago. The water was probably warm since coral fossils are present, and coral mainly grows in tropical latitudes today. (Geologists frequently make deductions about conditions in the past by making comparisons with what is seen to be happening today. This process of argument is sometimes called uniformitarianism and is summarised in the saying “The present is the key to the past”).

The shells are made of the mineral calcite (calcium carbonate, chemical formula CaCO_3). The limestone was formed by the gradual accumulation on the sea floor of millions upon millions of calcite shells and skeletons, whole and broken. With the passage of time, and the compression due to being buried, the loose calcite material became cemented together to form solid rock.

Notice that the limestone is layered. Each layer represents a batch of shelly material that was laid down on the sea floor. Geologists usually refer to the layers as beds or strata. If you look carefully you will see that the beds of limestone are separated from each other by layers of darker, muddy rock. This is shale, and it indicates that every so often suspended mud was washed into the sea, interrupting the accumulation of shell fragments.

If the beds of limestone were laid flat, on the sea floor, they would have been originally horizontal. Today they are no longer horizontal, but slope at a low, variable angle towards the West. Geologists refer to the slope of the beds as dip. Tilting of the beds must have occurred at some time after the limestone was deposited, probably at the end of Carboniferous time during a period of widespread earth movement and mountain building known as the Hercynian orogeny. Also of course, a great thickness of rock must have been eroded away since then because the limestone formed, by burial and compression of shell fragments, at a considerable depth below the sea floor.

Dark, irregular protrusions, usually two or three centimetres across, may be seen on the wave-smoothed limestone. They are made of hard silica, known as chert. Skeletal material from some organisms, such as sponges, are made from silica (SiO_2) rather than calcite. Somehow this silica became concentrated into separate lumps within the limestone.

Stop 3 : Southern end of Balcaddan Bay. From the apartments walk to the cliff on the far side of the beach. The rock here is not limestone. It is creamy brown in colour, it does not react with acid, and it cannot be scratched by steel. It is a rock known as quartzite. This quartzite probably began as ordinary (quartz) sand on the sea floor. It was buried under more and more layers of sand, and eventually the loose grains became squeezed and welded together to form solid rock. Of course, just as with the limestone, much rock must have been eroded away for the quartzite to be at the surface now.

Quartzite forms Howth Hill, Red Rock, the crags above Howth Castle, and the quarry about 1 km east of here. Being hard, quartzite is not easily eroded. When the land was rising, other less resistant kinds of rock were preferentially removed by erosion, leaving the quartzite standing proud as prominent topographical features. The quartzite is much older than limestone. Although it contains no fossils here, tiny fossils of Cambrian age (a little over 500 million years old) have been found in mudrocks associated with the quartzite elsewhere in the Howth area.

Notice that the rock at the base of the cliffs seems to consist of broken pieces of quartzite embedded in a hard, dark brown material. The brown material is probably the mineral haematite (iron oxide). This broken and re-cemented quartzite is known as breccia (pronounced “brech’ya”).

The breccia marks the place where a major fault plane separating Cambrian rocks from Carboniferous rocks appear on the coast. The fault extends right across the Howth Peninsula to Sutton. A fault plane is the site of an ancient earthquake. The earthquake responsible for this fault probably happened many millions of years ago during the Hercynian orogeny, mentioned earlier. Earthquakes occur when enormous stresses build up within the earth’s crust, and reach a level which the rocks can no longer withstand. Quite suddenly, the earth’s crust breaks along a giant crack (a fault plane) and the rock on one side of the fault moves violently in the opposite direction to the rock on the other side of the fault. Rock lying close to the fault becomes broken up in the process, and the gaps between the broken pieces later become filled with other material- in this case by haematite- to form the fault breccia. Consider for a moment the direction in which the limestone and quartzite moved relative to each other. The limestone is younger than the quartzite, so it is likely that quartzite is buried beneath it. This would imply that the (hidden) quartzite beneath the limestone on the north side of the bay moved downwards relative to the exposed quartzite on the south of the bay.

Solid rock is present only at either end of the beach. This is because fault breccia is a weak and easily eroded rock. The fault plane is really a broad fault zone, and the central part, where the quartzite-rich breccia grades into limestone-rich breccia, is extremely weak and lies beneath the beach. It has been eroded away leaving a gully which is now filled with the loose beach material.

Stop 4 : Balcadden Beach. While returning to the steps take time to examine the pebbles on the beach. Most of the pebbles are either of hard, creamy white quartzite or of scratchable grey limestone. These are obviously from the local area. Also from nearby are occasional pieces of the fault breccia, and flat pebbles of greenish rock which is Cambrian sandstone and mudrock. Other pebbles are from outside of the Howth area, and were presumably washed out of the boulder clay which had already been transported from far afield by the slow moving ice sheet. Look for coarse-grained rounded pebbles of grey granite with shiny flecks of mica. A rare, but very interesting rock type forms smooth creamy grey pebbles with millimetre sized dark blue-grey flecks. This is a special kind of granite found only on the island of Aisla Craig, which lies midway between Scotland and Northern Ireland. This granite provides evidence for the transport of rock fragments over great distances.

Some pebbles are not, in fact, rock at all. A significant number of rounded blocks of brick, concrete, and roof tile may be found. These show that pebbles on a beach can become rounded in just a few decades.

Finally you may find pebbles of grey limestone which resemble Emmental Cheese. The holes in them were bored by specially adapted shell-fish which, using their own acid to dissolve away the rock, provided themselves with a safe home.”

Appendix C : Research paper published in "Paleoworld "April 2010

Abstract :

A new genus and species of fasciculate rugose coral, *Howthia suttonensis* Somerville and Rodríguez, has been recorded from Howth peninsula, County Dublin, Ireland, in Waulsortian mud-mound limestones of upper Tournaisian age. The new colonial genus is characterised by having an axophyllid axial structure, steeply inclined tabellae, and presence of interseptal and lonsdaleoid dissepiments. It evolved probably from a solitary *Axophyllum* by the development of peripheral offsets. This new taxon may have been an ecological pioneer adapting to a specialised niche near the top of a large Waulsortian mud-mound in shallower water than most Waulsortian settings and, as such, may have provided a novel evolutionary opportunity. *Howthia suttonensis* is associated with *Amplexocarinia* and an unusual form of '*Fasciculophyllum*', both of which display budding and protoclonality, as well as the fasciculate tabulate coral *Syringopora*.

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Appendix D : The Bay as an Educational Resource and Teaching Tool

Balscadden beach is one of the 7 areas for which geology field guides are available on www.geoschol.com and it is heavily used by secondary school geography field trips from across the wider North Dublin area. We're trying to put together a complete list but so far have identified the following:

Mercy Coolock
St. Aidan's CBS, Whitehall
Sutton Park
Pobalscoil Neasáin, Baldoyle

The field trip interest in Balscadden Beach also applies to the biological life on display. Schools and the Dublin Naturalists' Field Club run field trips to look at the marine life in the rock-pools at the beach.

• Summary of Field trip from Pobalscoil Neasáin, Baldoyle :

Balscadden bay is a vital resource to secondary schools in the area. Each year 5th year Biology students and 3rd year Science students carry out an ecological study of the bay. This study covers all the mandatory field work required by these year groups. They carry out both a qualitative and quantitative study of the flora and fauna in the bay.

This study has shown that the bay has a wide diversity of plants and animals which gives the students an appreciation of the bay's ecological importance. During the field trip the students also examine the abiotic factors affecting the plants and animals in the bay. Through this ecological study of Balscadden bay students become aware of a habitat in their own area.

Balscadden bay is also used as a resource by 6th Geography students. The students carry out field sketching, a beach profile, beach fabric analysis, a cliff survey, a study of the underlying Geology, a wave survey and coastal protection. The students then write a report of their field trip which is worth 20% of their Leaving Certificate Geography mark. The field trip also gives them an understanding of the Geological importance of Balscadden bay.



Appendix E - Future impressions of the bay by local Artist - Ciara Ní Laoi



Renditions of the board walk starting at the south end of the east pier
and going along and around the outer side of the apartments

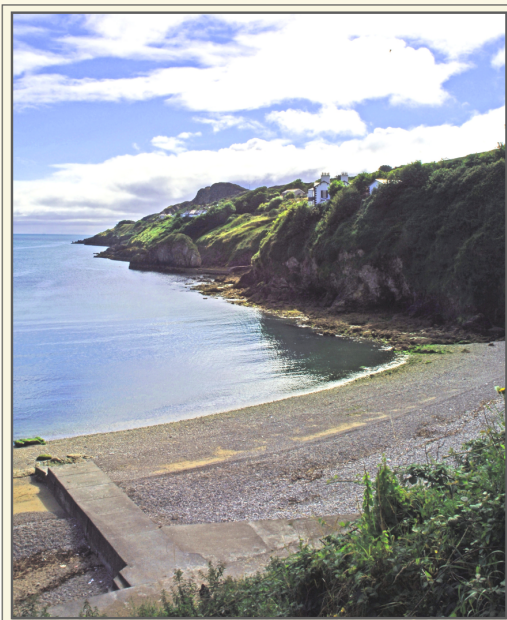


Renditions of the board walk starting at the south end of the east pier and going along and around the outer side of the apartments



FOBB

FRIENDS OF BALSCADDEN BAY



MISSION STATEMENT

Friends of Balscadden Beach is a group of concerned individuals including swimmers and local residents who strive to bring out the best in Balscadden Beach by organising and participating in regular clean-ups and community events on the beach. FOBB also works with relevant public bodies such as Fingal County Council and the local Garda Síochána to preserve access to the beach, provide appropriate facilities (e.g. refuse collection and pathway maintenance) and to keep the beach safe for use by all stakeholders.



Principal Objectives of FOBB

To preserve the area of Balscadden Bay- that is an area from the East of the Stack to the Northern end of the Asgard Apartments car park.

To improve access to the same.

To revive the area of Balscadden Beach and the former swimming area known as Fitzgibbons as a marine and recreational area.

Please contact us by email to subscribe to our newsletter and hear about our upcoming events :

FOBB08@GMAIL.COM

**CHRISTMAS SWIM
BEACH CLEANING
SUMMER FUN SPLASH**

FOBB IS A MEMBER ORGANISATION OF HOWTH SUTTON COMMUNITY COUNCIL (HSCC).

FOBB MEETS EVERY 2 MONTHS AT THE ABBEY TAVERN
IN HOWTH 1ST WED OF THE MONTH.

Designed by Hannah Levy - Photographer and Graphic Designer
contact : hannah_levy@yahoo.com

FOBB brochure flyer Front & Back

Acknowledgments

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