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# Message From the Chief Executive



2015 was an exceptional year for Dublin Port, with a 6.4% increase in cargo volumes. We have seen growth over the past three years of 17.3% and are now well ahead of where we were at the height of the boom in 2007.

It is timely that we received planning permission for the Alexandra Basin Redevelopment Project during 2015. This is the single largest port development project ever in the country and will help us to continue to cater for the expected high levels of growth in future years. We also finalised debt facilities of €100 million with the European Investment Bank during 2015 and succeeded in securing €23 million in grant funding from the EU for our investment plans.

Our growth in recent years has been driven by the investment decisions of our major customers, including Irish Ferries, Stena Line, Seatruck, CLdN, Doyle Shipping Group and Ecocem, and it is essential that we match these customers' commitments by investing in nationally important port infrastructure in Dublin, the country's premier port.

Eamonn O'Reilly

**Chief Executive** 

Edin

# The Year in Review

# Some of the highlights of 2015.





Berth 18 marked the half-way point of the Harbour2Harbour walk from Howth to Dun Laoghaire, where Dublin Port Company provided refreshments and entertainment for participants.

# **Charity Partnership with Aware**

Throughout 2015, Dublin Port Company has been working in partnership with national charity, Aware, which marked its 30th anniversary of raising awareness and providing support, education and information around depression.

The partnership aims to help promote Aware's vital work and services and one of the activities that Dublin Port Company supported was the charity's 10th Annual Harbour2Harbour walk from Howth to Dun Laoghaire. Berth 18 was marked the half-way point of the walk and Dublin Port Company was delighted to host the 'Halfway Hooley' by providing refreshments and entertainment for all those taking part. Aware was also represented at the company's Riverfest in June.

Since its foundation in 1985, Aware has grown from one support group in Dublin to a wide range of services and supports available nationwide, in the community, over the phone and online. The organisation currently offers 10 weekly support groups throughout Dublin, including one for young adults aged 18-25. The support groups, along with the Support Line and Support Mail services, offer people the opportunity to acknowledge their thoughts and feelings and to focus on helpful actions they can take to feel better.

The partnership with Dublin Port Company is an important one for Aware. Drew Flood, Business Development Executive with Aware, explained that the charity are "delighted with how our partnership with Dublin Port Company progressed," and Dublin Port Company have announced that they are continuing the partnership into 2016.

For further information, see www.aware.ie.



# **Restoring Dublin's Diving Bell**

Millions of people have passed by the odd looking, bell-shaped, red metal structure standing tall on Sir John Rogerson's Quay and wondered what it is. It is, in fact, an ingenious feat of Irish engineering that was essential in building Dublin's quay walls for 87 years. This is Dublin Port's 'Diving Bell'.

2015 saw Dublin Port Company embarking on a new project to shed light on this important artefact and transform the Diving Bell into a new interpretive exhibition that explains its origin and history.

The project, which commenced in February and was officially opened by the Minister for Transport, Tourism and Sport, Paschal Donohoe TD in June 2015, elevated the 13-metre tall, 90 tonne Diving Bell onto a two-metre steel structure, creating a ramped public access route underneath. A water feature was also installed beneath the structure, accompanied by a series of interpretative panels, explaining the historical, social and engineering significance of the Diving Bell. The new exhibition is illuminated at night time, using energy efficient LED lighting.

The Diving Bell was designed by the port engineer Bindon Blood Stoney (1828 to 1907) and built by Grendon and Company in Drogheda. It was delivered to the Port in 1866, entered service in 1871 and was used in the building of the Port's quay walls until 1958. Stoney was a prodigious engineer and among his achievements was the building of the Boyne Viaduct in Drogheda, the

construction of O'Connell Bridge and the building of many of the Port's quay walls, including Sir John Rogerson's Quay and North Wall Quay Extension.

The Diving Bell was a ground-breaking piece of engineering innovation in its day and it was used in the building of the Port's quay walls from the Victorian era right up until almost the 1960s. Its lower section was hollow and bottomless, providing just enough room for six men to work at a time. Once lowered into position on the river-bed, the crew entered through an access funnel from the surface and compressed air was fed in from an adjacent barge. The men inside the bell worked on the river bed exposed at their feet, excavating the site where a massive concrete block would later go; all the excavated soil was stashed in trays hanging inside the bell, and brought up when the bell was lifted.

The 2015 restoration project was designed with the expertise of a range of people, including the architect Sean O'Laoire, the sculptor Vivienne Roche, Tom Cosgrave (Professor of Engineering at the University of Limerick) and Mary Mulvihill of Ingenious Ireland, and Weslin Construction Ltd carried out the project.

This is the first project in Dublin Port's plan to create a 'distributed museum' of attractions across the Dublin docklands and into Dublin Port to preserve the port's industrial heritage and history.



Minister for Transport, Tourism and Sport, Paschal Donohoe, TD, officially opens Dublin Port's Diving Bell following a four month restoration project by Dublin Port Company. Also pictured are Lucy McCaffrey, Chairperson, Dublin Port Company, Betty Ashe, Dermod Heron, one of the last Dublin Port Company employees to work in the diving bell, Eamonn O'Reilly, CEO, Dublin Port Company. (Picture: Conor McCabe Photography).





Pictured are (I-r): Eamonn O'Reilly, CEO, Dublin Port Company; Phyllis Difeto, Chief Operations Officer, Transnet - National Ports Authority, South Africa; Philippe Matthis, Deputy Director General of the Port of Brussels, President of AIVP; and Owen Keegan, Chief Executive of Dublin City Council.

# **AIVP Conference**

Dublin Castle was the location for the AIVP Conference 2015 from May 28-30th, an International Ports & City conference hosted jointly by Dublin Port Company and Dublin City Council.

Minister of State, Paudie Coffey TD opened the AIVP conference, which discussed the integration of port functions into redeveloping urban spaces on port city territory.

Eamonn O'Reilly, Chief Executive of Dublin Port Company, said: "The conference shined a spotlight on the special relationship between ports and cities."

This was the first time an AIVP conference was held in Ireland. The conference was based on the theme 'Working Waterfront; a City-Port mix in progress', and also included a 'technical tour' of Dublin Port and Bay on board the St.Bridget, as well as the Admiral's Ball in the Round Room of the Mansion House.

ANP, the world network of Port Cities, is the only international organisation that, for 25 years, has been bringing together all

the public and private development stakeholders in port cities. AVP consists of:

- elected representatives of cities and other local maritime and river organisations,
- port administrations and national authorities, urban and port operators,
- businesses established in port cities,
- service providers for port-city projects, architects, landscape architects and urban planners,
- universities and research institutes.

The conference included significant contributions from DCC, including Deirdre Scully, Project Leader, Strategic Development Zone, DCC, who addressed the topic of 'Docklands Regeneration: Dublin City Council's new Strategic Development Zone', while the closing address was provided by Owen Keegan, Chief Executive, Dublin City Council, who noted that "Hosting international conferences is not only good for tourism but also for businesses, retailers and jobs."

For further information see: www.aivp.org.





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# Riverfest Lights Up the City

The June Bank Holiday Weekend saw more than 44,000 people enjoying the third annual Dublin Port Riverfest at North Wall Quay, with a combination of on-water activity and on-land amusements.

Sponsored by the Dublin Port Company and organised by the Docklands Business Forum, attendees enjoyed a unique celebration along the historic quays, with a jam packed programme of entertainment and family fun. A huge array of activities were planned over the course of the weekend, including the arrival of tall ships and schooners, which berthed at North Wall Quay. The arrival of the tall ships through the Eastlink Bridge signalled the beginning of the Dublin Port Riverfest, and the Morgenster, the Pelican of London and the Kastelot proved to be great crowd pleasers and amongst the most popular attractions of the entire weekend.

The on-water performances of Dublin's Ports tug-boats to crowds of spectators along the Quay proved the most popular activity on the water, as the Shackleton and Beaufort tugs performed tug-boat dances to the delight of the audience.

Other highlights included kayaking sessions, which allowed festival-goers to see the visiting ships from a unique angle. Dublin Bay Cruises' St Bridget offered three trips daily out into Dublin Bay and The Jeanie Johnston once again provided free tours over the course of the weekend.

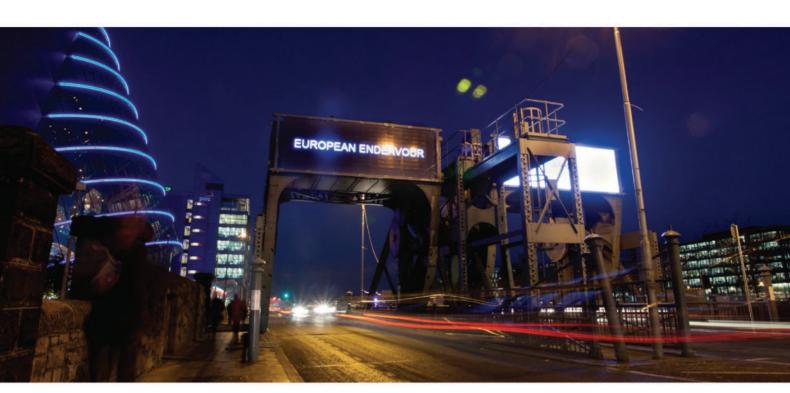
Of course, the smaller boats, the fly boarder, and the visit and parade of sail from DPC's friends in Poolbeg Yacht Club all played a valuable part in bringing the water to life and giving the festival maritime vibrancy. On land, the Victorian Carousel had over 2,500 people over the three days, while the food and craft markets all proved very popular.

There were pirate re-enactments all weekend, open air food and craft markets, while Customs and Excise officers were on hand all day at Dublin Port Riverfest with their vessel, The Cutter, on view and they also carried out sniffer dog demonstrations!

The on-stage entertainment attracted parents of young children with a specially adapted play, comedians, magicians, jugglers, escape artists, music from shanty singers and a unique Irish/Nigerian band entertaining the crowds!

For more information, see www.dublinriverfest.com.







# **Dublin Ships in the Night**

Aodhán Ó Ríordáin, TD, the Minister of State at the Department of Justice and Equality and Arts, Heritage and the Gaeltacht, officially opened a new public art installation entitled 'Dublin Ships'. Commissioned by Dublin City Council and supported by Dublin Port Company, the installation was unveiled at the Scherzer Bridges beside the Convention Centre on North Wall Quay - where Dublin city, Dublin Port and the docklands meet.

Created by the artist Cliona Harmey, this new piece of public artwork brought to life the movements of ships entering and leaving Dublin Port daily, creating a digital log of the port's activities in full view of the city. The artwork was generated from live electronic signals which track the arrival and departure of each ship in Dublin Port. The name of

the ship was then transmitted in real-time to two large LED screens facing towards the city, and remained illuminated in black and white until the next ship either arrived in or left the port.

Dublin's citizens, commuters and pedestrians saw the newest addition to the city's public art collection during the installation's tenure, which was extended to November due to its popularity. The piece was commissioned by Dublin City Council as part of the Dublin City Public Art Programme under the theme of 'Interaction and the City' and received funding by Dublin Port Company. Indeed, 'Dublin Ships' was an award winner, lifting the Jim McNaughton Perpetual Award for Best Commissioning Practice at The Allianz Business to Arts Awards. See full story on Page 24.

Further details on the project: www.dublinships.ie.

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# **Dublin Bay Conference**

Dublin Port Company hosted a major conference on April 29th on the history and environment of Dublin Bay, in the Gibson Hotel, Point Village, Dublin 1.

The conference celebrated the 300th anniversary of the building of the Great South Wall, the beginning of the modern port. This full-day event explored the history of the bay, from maritime archaeology and historic maps to the sailing trawlers that once plied its waters.

A host of experts explained how the sandy shorelines change shape and how new sand dunes and salt-marshes are formed, as well as profiling the estuarine life, coastal birds and marine mammals. The conference ended with consideration of the future for Dublin Bay, the options for management and the likely impacts of climate change.





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President of Ireland, Michael D. Higgins and his wife Sabina Higgins inspect the crew of Mexican Navy Tall Ship Cuauhtémoc at a special reception marking the end of the vessel's five-day visit to the capital and celebrating 40 years of diplomatic relations between Ireland and Mexico. Welcoming them on board were the Mexican Ambassador to Ireland, Carlos García de Alba, and Commanding Officer Pedro Mata to the sound of The Buena Vibra Latin Jazz Trio with the Royal Irish Academy of Music Percussion Ensemble, and music from the San Patricio Mariachi Band (Picture: Colm Mahady / Fennells).

# **Mexican Waves in Dublin Port**

The Cuauhtémoc Tall Ship, captained by Pedro Mata, sailed into Dublin Port on June 17th, with 225 men and women on board for a five day visit. The Cuauhtémoc saluted the city just before entering the port with a cannon salute in Dublin Bay. Dublin Port's tug boats, Shackleton and Beaufort, and a flotilla of yachts met the vessel in a ceremonial escort to mark its arrival.

During the visit, those on board participated in a five day programme of events, which included a visit by President Michael D. Higgins, a performance by the Buena Vibra Latin Jazz Trio with the Royal Irish Academy of Music Percussion Ensemble, along with the San Patricio Mariachi Band. The Cuauhtémoc was available to visit for free while berthed at Sir John Rogerson's Quay. "Dublin Port Company was delighted to welcome the Cuauhtémoc and her entire crew to Dublin," noted Eamonn O'Reilly, Chief Executive of Dublin Port Company. "Her visit served as an important reminder of our cultural bond and trading links. Everyone showed the Cuauhtémoc a warm Irish welcome during her stay. It was a fantastic opportunity to explore this magnificent vessel up close and experience first-hand Mexican maritime culture on our doorstep."

The Ambassador of Mexico to Ireland, H.E. Carlos Garcia de Alba said: "2015 marks the 40th anniversary of the establishment of diplomatic relations between Ireland and Mexico... The arrival to Dublin of the Mexican Navy's Tall Ship Cuauhtémoc is just one of the many events to take place that reaffirms the commitment to strengthen the excellent ties of friendship and co-operation between our nations."









# **Casting of the Spear**

Dublin's new Ardmhéara/Lord Mayor of Dublin, Críona Ní Dhálaigh performed Dublin Port's annual 'Casting of the Spear' ceremony, a tradition dating back 500 years, on July 21st. This was the Lord Mayor's first official duty as Honorary Admiral of Dublin Port.

Records show that in 1488, the Lord Mayor at the time, Thomas Mayler, rode on horseback and cast a spear into the sea to mark the city's boundaries to the east. The re-enactment ceremony reminds us of Dublin Port's history since its establishment as a trading post 1,200 years ago.

Members of the local port communities joined the ceremony as they celebrated the launch of the 28th annual South Docks Festival.









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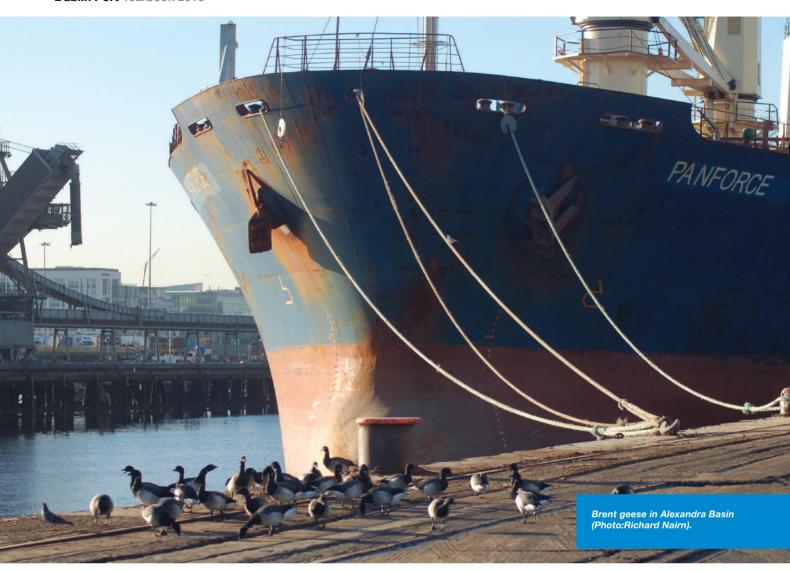
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# At Home on the Water

Dublin Bay has been designated as a Special Protection Area under the EU Birds Directive, supporting tens of thousands of waterbirds that migrate from their Arctic and boreal nesting areas during the winter months. The primary aim of the project is to gather detailed information about how waterbirds use the Dublin Port area and Dublin Bay overall for roosting and foraging, and to gather information about the importance of Dublin Bay in the context of neighbouring estuaries. Dublin Port Company continues to work with Birdwatch Ireland in their ongoing monitoring of the bird population within the port.

# **Dublin Port Company Pay €8.8 Million Dividend** to the State

Dublin Port Company were again happy to announce that they were in a position to pay over a dividend of €8.8 million to the State for the 2014 financial year. The payment represented 30% of the port's distributable profits for 2014. Since 2007, Dublin Port Company has paid the Government a total of €78.6 million in dividends.

This payment followed a successful 2014 for Dublin Port, where cargo volumes increased 7% year-on-year. Indeed, Dublin Port Company recently published trade statistics for 2015, which show a record year for trade at Dublin Port, with growth year-on-year of 6.4% - See full story on Page 63.



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Pictured at the announcement are Gerry Horkan, Dún Laoghaire-Rathdown County Council; David O'Connor, Mayor, Fingal County Council; Richard Bruton TD, Minister for Jobs, Enterprise and Innovation; Dublin Lord Mayor, Christy Burke; Barry Saul, Cathoirleach Dún Laoghaire-Rathdown County Council; Susan McMonagle, Protection Assistant at UNHCR Ireland; and Eamonn O'Reilly, Chief Executive, Dublin Port Company.

# **Dublin Bay Named UNESCO Biosphere Reserve**

June saw the announcement that Dublin Bay has been designated as a UNESCO Biosphere Reserve. The announcement was made by Richard Bruton TD, Minister for Jobs, Enterprise and Innovation.

Biospheres are places where nature and culture connect. They promote a balanced relationship between man and nature. The Tolka and Baldoyle Estuaries, Booterstown Marsh, Howth Head, Dalkey Island, Ireland's Eye, and North Bull Island were designated as the Dublin Bay Bioshpere because of rare and important habitats and wildlife species that can be found here.

A Biosphere has three goals: conservation, learning and development. Popular activities within the Biosphere include cycling, walking, hiking, swimming, bird-watching, boat trips, kite surfing, windsurfing, stand-up paddle boarding, kayaking, painting, photography, art exhibitions and dining. The Reserve will be protected and promoted by the Dublin Bay Biosphere Partnership. For more information, see www.dublinbaybiosphere.ie.



# **EIB commits €100m to Dublin Port ABR Project**

October saw the Vice President of the European Investment Bank (EIB), Jonathan Taylor, meeting with Dublin Port Company representatives to finalise financing arrangements for Dublin Port's Alexandra Basin Redevelopment (ABR) Project. The Minister for Transport, Tourism & Sport, Paschal Donohoe TD was also in attendance to discuss Ireland's long-term infrastructure development plans.

The EIB has committed to providing a €100 million loan over 20 years, reflecting the long-term nature of the ABR Project, which received a grant of planning permission from An Bord Pleanála in July 2015. This is the first time in 20 years for the EIB to finance port infrastructure development in Ireland and highlights the strategic significance of the project. The largest single infrastructure development project in the history of Dublin Port, Dublin Port's ABR Project is expected to take five years to complete, costing an estimated €230 million. An analysis by Indecon International Economic Consultants of the wider economic impacts arising from the ABR Project found that for every €1 million in economic costs, the project is associated with €2.8 million in economic benefits. See full story on the ABR project on Page 30.





# Outstanding Year for Dublin Port

2015 wasn't just a tremendous year in terms of throughput figures, with Dublin Port Company lifting four major awards over the course of the year.

2015 was a momentous 12 months for Dublin Port Company, who lifted no fewer than four major awards over the course of the year: the ESPO Award on Societal Integration of Ports; the Chambers Ireland CSR Award for Excellence in the Community; the Allianz Business to Arts Jim McNaughton Award for Best Commissioning Practice; and the In Business Editor's Choice Award for Excellence in Logistics.

### **ESPO Award**

ESPO, the European Sea Ports Organisation, awarded Dublin Port the ESPO Award on Societal Integration of Ports in recognition of DPC's strategies in making schools and universities aware of their local port and its activities.

The theme of this year's ESPO Award was engagement with local schools and universities, and this is an area where

Dublin Port Company excelled with their Port Communities Educational Support Programme. The programme includes Early Learning Initiatives, Technology in Schools programmes, a scholarships programme and support to sporting teams.

Eamonn O'Reilly, CEO of Dublin Port Company, was delighted with the award, which he described as "a prestigious recognition by our peers in the port industry across Europe of our efforts in Dublin to achieve a greater unity between the port, the city and local communities through the medium of education. I have always been impressed by the quality and the number of submissions for the ESPO Awards and for Dublin to be recognised this year is a tremendous endorsement. It is also a great motivator for us to continue to work more generally to achieve the objectives of ESPO's Code of Practice on the Societal

Integration of Ports. To win the ESPO Award 2015 is very much a case of *primus inter pares*."

The ESPO award was established in 2009 to promote innovative projects of port authorities that improve societal integration of ports, especially with the city and wider community in which they are located.

Dublin Port Company has always recognised that not only is the port part of the local community but the community is part of the port. The port covers approximately 260 hectares and supports over 4,000 jobs. Many of those employed in the port are from the local community, which has been the case for generations. In order to future proof the port, Dublin Port Company recognises the need to promote the pursuit of education from a very young age.

Dublin Port Company's Educational Programme promotes lifelong learning, spanning all age groups from pre-school right through to third level and adult education, with the first scheme being launched in 2001. Since then, almost €800,000 has been awarded in educational bursaries, over €140,000 has been funded to local primary and post primary schools and €50,000 has been provided to fund adult literacy courses for people living in the area, as well as countless hours of mentoring and support to beneficiaries of the Dublin Port Company Educational Programme.

Since the initial scheme offering third level scholarships to local students was launched in 2001, the Educational Programme has expanded. Dublin Port Company now funds a pre-school education scheme in partnership with the National College of Ireland (NCI) and technology infrastructure in local primary and secondary schools. It provides work experience for transition

year students, offers third level students an opportunity to spend time observing and studying the various aspects of the operations of the Port, as well as funding adult literacy and numeracy courses for people in the vicinity of the port.

In conjunction with these structured schemes, ad hoc events are scheduled regularly, providing tours of the port area to local school children, community groups, as well as students visiting from abroad. Dublin Port Company are also close partners with Sail Training Ireland, which provides opportunities for young people to experience life on a working Tall Ship.

It is worth mentioning that Dublin Port Company's contribution is not only financial. In many instances, staff have volunteered to help with local projects and have been on hand to assist students who come to Dublin Port Company on internships and work placement schemes. Craft workers have diligently trained apprentices. Managers have mentored interns and provided a unique insight into the workings of the port for groups and individuals who visit the port on an ad-hoc basis. Dublin Port Company has also been instrumental in helping local schools to secure further funding by providing networking opportunities with other local businesses. By showcasing the successes of existing schemes and facilitating connections with other organisations within the Port, the positive relationship with education is continuing to thrive.

Indeed, the educational programme was developed as a response to the reduction in employment opportunities in the port due to the industrialisation of cargo handling, which began in the 1960s with the growth of unitised freight. Dublin Port Company has historical ties within the community and local people have being employed in The Port area for generations. Traditionally, much of the work carried out in ports





Pictured are (I-r): Eamonn O'Reilly, CEO, Dublin Port Company; artist Cliona Harmey, and Lucy McCaffrey, Chairperson, Dublin Port Company (Photo: Conor McCabe Photography for the Allianz Business to Arts Awards 2015).

has been manual and unskilled, meaning many dock workers in the past would have had minimal education. However, as shipping practices and transport technology develops, so to have the skills required. In an effort to continue the tradition of supporting local employment, Dublin Port Company recognises the need to encourage people to remain in education as the requirement for skilled work increases in the industry.

Through the many facets of their Education Programme, Dublin Port Company has sought to re-integrate itself with the local community. Much of the programme relies not only on the funding provided but on the expertise, knowledge and commitment of the Dublin Port Company employees who help to deliver particular aspects of the programme. Dublin Port Company has worked hard to build partnerships with the schools in the community to identify what their requirements are and how Dublin Port Company can help them to achieve their goals.

# **Chambers Ireland CSR Award**

At the Chambers Ireland Corporate Social Responsibility (CSR) Awards, Dublin Port Company came out on top of the very competitive category of "Excellence in the Community – Community Programme – LIC". The project considered for the award was Dublin Port Company's support of the National College of Ireland's Early Learning Initiative, which is aimed at pre-school children and their families. The programme sees home visitors from the community being trained by the NCI to provide educational tools and guidance for participating families. Both Dublin Port Company and the National College of Ireland are delighted not only with the prestigious award but also with the continued growth and success of the programme.

The Early Learning Initiative (ELI) is a community based educational initiative aimed at addressing educational disadvantages through the provision of an integrated programme for children, their parents and families. The ELI is focused purely on pre-school learning. It is believed that by developing good habits and a love of education at an early age, that it will have benefits at all stages of education.

As part of the overall initiative, the Parent Child Home Programme helps parents to develop the skill and competence to help their children as learners at an early age in the belief that they will be motivated and encouraged to do so throughout the child's school-going years. It is believed that by providing support for parents in the early years, the foundations for good learning practices will be set. It employs a non-directive approach and encourages the parent as the child's first and best teacher. The Parent Child Home Programme promotes positive interactions, which are child-focused and led, between children, parents and local practitioners in the home.

Home Visitors provide a key component of this programme. They are all local people, who have been employed and trained by NCI. They visit participating families twice weekly, providing educational tools and guidance for parents. During 2013/2014, they made an average of 48 visits to the 78 families participating in the programme.

Results published by the NCI found that 83% of the children in the programme were meeting their developmental milestones in May 2014 compared with only 17% of the children when they began the programme in November 2012.

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Dublin Port Company's Corporate Social Responsibility agenda is a cornerstone of the organisation's overall strategy. It is the commitment of the Port to contribute to sustainable economic development – working with employees, the local community and society at large to improve the quality of life, in ways that are both good for the business of the Port and good for Dublin City, its citizens and visitors.

Dublin Port Company are longstanding supporters of educational programmes in the Dublin Docklands area. They have run a scholarship programme for many years enabling local students to pursue the third level qualification of their choice. Since the commencement of the DPC Scholarships Programme in 2001, over 600 students have received financial support for their third level educational choices. In total, DPC currently supports over 100 local students in furthering their education at third level. From 2001 to 2014, 599 students received funding through the scholarships programme

### **Allianz Business To Arts Award**

The 'Dublin Ships' project from artist Cliona Harmey, which was commissioned by Dublin City Council's 'Interaction with the City' programme and supported by Dublin Port Company, was awarded the Jim McNaughton Perpetual Award for Best Commissioning Practice at The Allianz Business to Arts Awards ceremony at The Bord Gais Energy Theatre.

'Dublin Ships' placed large digital screens on the Scherzer Bridge that showed the movement of ships in the port in real time. The hugely successful installation was designed as an attempt to reconnect the work of the port with the citizens of the city and proved so popular that its tenure was extended.

Dublin Port Company CEO, Eamonn O'Reilly was delighted with the Award win and highlighted the importance of arts sponsorship to DPC. "We have found that the arts provide a means to engage with people whose support we depend on if we are to operate and grow."

### **InBusiness Best in Logistics Award**

Finally, Dublin Port Company was the winner of the Best in Logistics Award from 'In Business', the magazine of Chambers Ireland. The awards honour outstanding achievement in the Irish business community and the winners are selected based on broad criteria, including growth, profile of business, range of services and customer care.

"It was originally estimated that the port would handle 60 million tonnes in 2040. However, recent growth and projections mean it is more likely that we will hit this milestone closer to 2030," enthused Eamonn O'Reilly, CEO. "We are delighted with this award, which recognises the logistical challenges we continue to overcome. Dublin Port Company is committed to developing the port in a sustainable way in order to address the future capacity requirements. It looks forward to another busy year in 2016, not only for Dublin Port Company but the Irish economy as a whole as we continue to grow."



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# ABR: The Biggest Project in 200 Years



The redevelopment of Alexandra Basin is the largest capital project ever undertaken in the 200-year history of Dublin Port and will allow Dublin to welcome the world's biggest ships. It will also future proof Dublin Port for at least another half-century, explains Garrett Dorman, Projects Manager, Dublin Port Company.

The €227 million Alexandra Basin Redevelopment (ABR) project at Dublin Port is the largest single infrastructure development in the Port's history. When complete, it will increase the port's ability to handle large ships by deepening and lengthening three kilometres of the port's seven kilometres of berths. It will also deepen the port to provide an entrance channel with a depth of at least 10 metres.

"Essentially, the ABR project will transform Dublin Port's infrastructure and enable it to service the economy for decades ahead," explains Garrett Dorman, Projects Manager

at Dublin Port Company, who reveals that the construction phase of the project will take four years, while the dredging of the channel will take six, but the two can run simultaneously – the construction work will be finished in 2019, with the dredging completed two years later.

"When I joined the port in September 2014, I said I could do it in two years, but that would have meant closing the Port and we'd all be bankrupt," laughs Garrett. "So it has to be done in a certain sequence, allowing us to move the Port's various tenants, so their business remains operable at all times."



That is arguably the single biggest challenge in the entire project, ensuring that the Port's myriad operators, ranging from ferry companies to bulk transporters like Tara Mines and Bord na Móna, are not greatly discommoded.

"When we start the construction work, we have to move some of the existing operators: we will have to build their new plant and offices and have them up and running the night before we demolish the old one, so the transition is seamless," Garrett explains. "We want the tenants to be able to leave their current building on a Sunday night, and start in their new office on Monday morning with no problems.

"Some port operators, such as Bord Na Móna, may have to stockpile material for some weeks prior to moving, while their new depots are put in place," Garrett continues. "Others, like Tara Mines, may have to pause deliveries and stockpile their products for a couple of weeks, but we have to get them up



Garrett Dorman, Projects Manager, Dublin Port Company.

and running as quickly as possible. When we knock down some of the infrastructure, in Tara Mines' case, we will have to design and build them a new conveyor system."

### **Future Proofing the Port**

So why go to all this trouble? Essentially, the ABR project is being undertaken to upgrade the facilities of the Port to enable it to take larger ships, both cruisers and container ships (RoRo, LoLo etc), but it is also to develop and rebuild/refurbish the quay walls, some of which are need of some serious structural repair after years and in some cases, centuries of use.

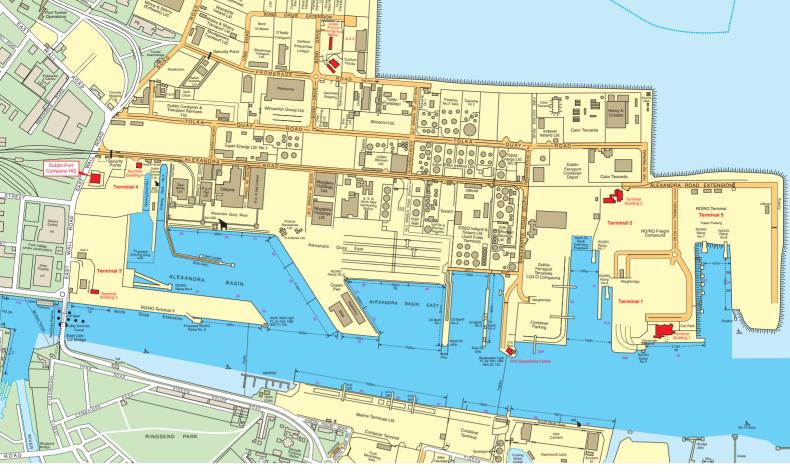
"The Great South Wall, for example, was surveyed in 1800 by Captain William Bligh, who went on to become famous for the mutiny on the Bounty," Garrett states. "Some of the quay walls were only built in the 1920s but they are past their sell-by date. If we want to run large, heavyweight cranes, the wall will start to spread and will push into the sea. By putting in nearly three kilometres of quay wall, adding new berths and reducing the size of the North Wall Quay, we will give the Port another 50 years of life."

The new quay wall will be constructed mainly by inserting a new steel wall in front of the existing quays, made up of interlocking steel tubes or piles that are 1.4 metres in diameter and 40 metres in height, five times the height of a two-story house, which are inserted 10 metres down into the bedrock of the port.

"When you put these piles in, you have to tie them back somehow or the pressure from the pier, when you are running heavy machines, can cause problems. So you install a steel rod at a 45-degree angle, which acts as an anchor down into the bedrock, to ensure they are fixed in place, similar to some rock anchors that are used in motorway projects," Garrett reveals.

### **Silent Piling**

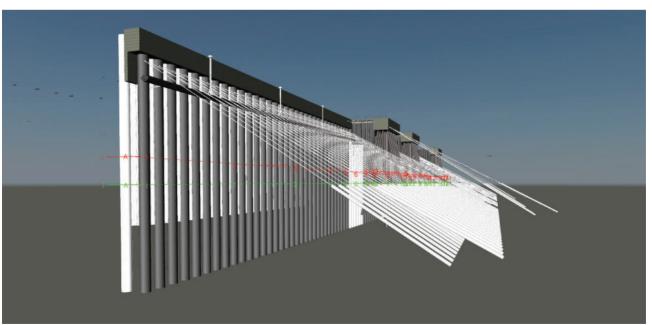
The Projects Manager explains that normally, either a massive hammer drives the metal pile into place or there is a giant



The main construction works will take place at Alexandra Basin West and Berths 52 and 53.

auger, which drills into the sea bed, allowing the pile to slot into position. Both methods can be noisy, however, and DPC must ensure that noise levels [decibels] above and below the water level do not exceed the levels as stated in the EIS and Planning consent. DPC are actively looking at various types of "piling" methods, both in Europe and further afield: to this end, DPC have sent their engineers and consultants to investigate and view similar construction methods in other ports. One of the innovative methods under discussion is silent piling.

Garrett explains the process: "A powerful hydraulic clamp grips into the top of several interlocked steel sheet piles. It has a crane on the back and, similar to taking an arrow from a quiver, it takes a new pile and using the strength of the piles already gripped, it torques the new pile into the ground noiselessly: this is called reaction piling. It doesn't affect marine life and doesn't affect residents, because there is absolutely no noise and zero vibration."



The new quay wall will be constructed mainly by inserting a new steel wall in front of the existing quays, made up of interlocking steel tubes or piles that are 1.4 metres in diameter and 40 metres in height, inserted 10 metres down into the bedrock of the port and anchored with steel rods, which are inserted at a 45-degree angle.





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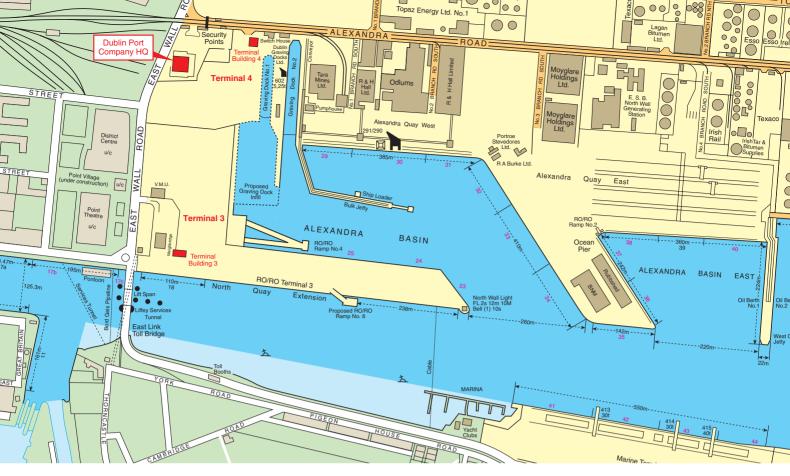
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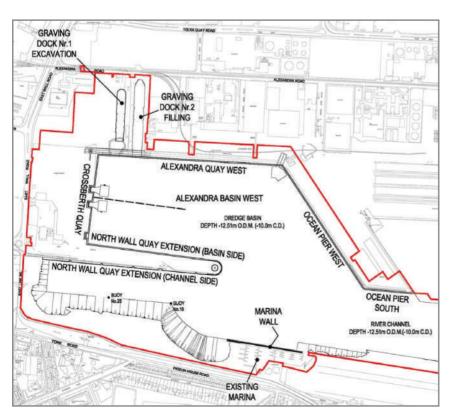


Existing land use at Alexandra Basin West.

There is one big drawback: cost. "It is a very expensive process but in some cases, we will have to utilise it because this is not a very wide river and noise travels across the water, and this method is a fast and silent process."

Garrett has experience of using silent/reaction piling in the development of Canary Wharf Station in London. "It takes a long time to plan because you have to ensure you have the reaction piling machines, many of which are being used to build tsunami walls in the Far East."

Cost is obviously a challenge with any project of this size. DPC are aware of this and are prepared to future proof the project against inflation by buying forward. "We will need, for example, in the region of 500 giant steel piles," Garrett explains, "so we will buy them immediately and they will remain on the Continent until we need them. We are ensuring we get them at a competitive price, because the steel industry is thriving in Europe and if we left it for even a year, the price could be significantly higher."



What Alexandra Basin West will look like when the project is finished.





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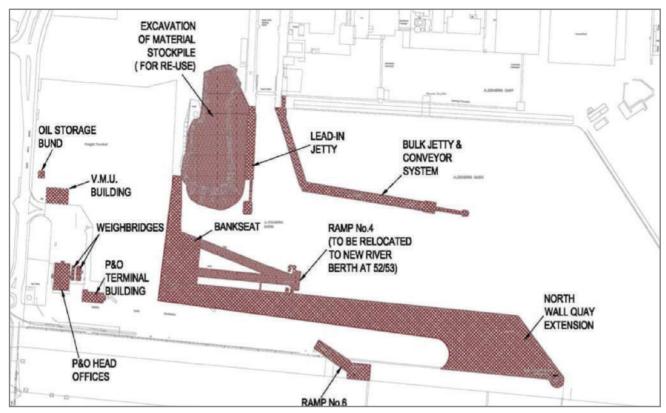
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The infrastructure to be removed at Alexandra Basin West.

#### **Rigorous Environmental Assessment**

The ABR is the biggest infrastructure project on the island of Ireland that is not a greenfield development. Given the port's sensitive location at the heart of Dublin Bay and Dublin City, the project was subjected to a rigorous assessment by An Bord Pleanála of possible impacts on the environment generally and specifically on protected Natura sites. The project received the green light in July 2015, however, and the tendering process has begun for this massive development, which will be split into a large number of smaller projects.

"It is far too big to treat as one, two or even five projects," Garrett reveals. "So this is being managed as multiple contracts and projects, carried out in sequence. We have a master programme, which details all the contracts, including some that wouldn't have been foreseen when the overall Masterplan was written, like building new offices and warehouse sheds for tenants, moving a quay wall etc."

The tendering process for individual projects is straightforward; projects valued below €5 million are organised through DPC's in-house procurement system; projects valued over that are advertised, by law, in the European Journal

"For the first phase of development, we have had 19 expressions of interest from companies all over Europe: Dutch, German, Irish, UK, French etc. We then pre-qualify them into a group, send them the tender documents and seek quotations from each company for each project," Garrett reveals.

The ABR Project is a complex undertaking that required coordinated planning with a range of bodies including Dublin City Council, the National Roads Authority (NRA), the National Transport Agency (NTA), ESB Networks and Eirgrid.

DPC had to submit a detailed Environmental Impact Statement in order to obtain planning permission for the ABR project.

"As Dublin Port's ethos is to strive to raise the level of Environmental values within its domain, we are engaging an environmental consultancy to advise DPC and monitor the ABR Project from start to finish and then additional monitoring for two years after completion of the project," Garrett reveals.

Ensuring the Port's bird and mammal population (including seals, dolphins and porpoises) is not adversely affected is a paramount concern. "One of the requirements of the Planning permission is that we monitor the mammals in the basin/river throughout all construction phases," Garrett explains. "If a mammal is spotted within 500 metres whilst we are dredging, then the works must cease until the mammal has moved away. Whilst actually constructing the quay wall, if a mammal is spotted within 1000 metres, then construction must cease until the mammal moves away."

DPC are also in the process of moving a pontoon, currently used by nesting birds, to allow them to dredge the channel. "Our environmental division came up with a plan whereby we built a new pontoon and fitted it with nest boxes, and slowly



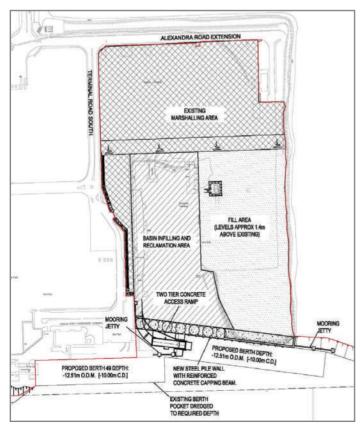
Existing land use at Berths 52 and 53.

but surely, the birds are moving to the new pontoon to nest, and eventually we will move the older pontoon completely," Garrett notes.

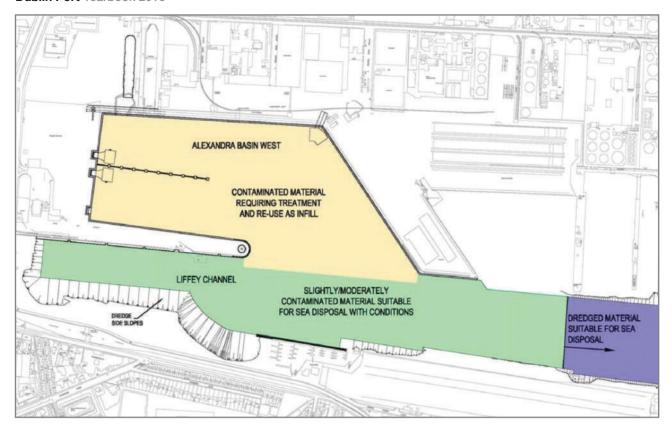
#### **Licenses & Funding**

An Bord Pleanála's planning permission has paved the way for the last remaining steps to deliver the ABR Project. "There are several other important permissions/approvals that we

require, including foreshore licensing for site investigations, foreshore licensing for construction, a Dumping at Sea licence and EPA approval to move 470,000 cubic meters of contaminated material from Alexandra Basin down to berths 52/53 for remediation treatment as an infill material," Garrett reveals. "All of these have been applied for and we await approvals for same: these we must have prior to commencement of any construction in the water.



The changes to be made at Berths 52 and 53.



Dregde material locations within Dublin Port.

However, we are carrying out all the required surveys and investigations that we are allowed to prior to obtaining our required licensing permits."

The European Investment Bank (EIB) has committed to providing a €100 million loan for the ABR project, amortising over 20 years, reflecting the long-term nature of the ABR Project. This is the first time in 20 years for the EIB to finance port infrastructure development in Ireland and highlights the strategic significance of the project. An analysis by Indecon International Economic Consultants of the wider economic impacts arising from the ABR Project found that for every €1 million in economic costs, the project is associated with €2.8 million in economic benefits.

The EU already committed funding of €2.4 million towards Dublin Port Company's costs of bringing the ABR Project through to the point of being ready for construction, as well as European Commission funding of €22.8 million for the construction phase of the project. "If we finish the construction project by the end of 2019, we get the full amount of the EU grant." Garrett reveals.

#### **The Cruise Business**

The ABR development will have big repercussions for Dublin's cruise business. Until now, the largest cruise ships, some of which measure up to 333m long, have had to reverse into Dublin Port, given their lengths. The ABR Project will allow larger ships to routinely call at Dublin, turn within Alexandra Basin and berth as far upriver as East Link Bridge. This will create a positive economic impact for the city, enhance inbound tourism and contribute to the development of the Docklands.

"We have to ensure that cruise passengers aren't arriving into a building site during the construction phase," Garrett explains. "Once the 2016 cruise season is over, part of the quay will shut down, because we cannot let cruise ships in when we have massive pieces of plant beside them. We only have six months to do this, so we are looking at some very innovative solutions to the project, like silent piling."

#### **Dredging the Channel**

As well as the construction process on shore, the ABR project also involves dredging the channel, removing six million cubic metres of sand and silt and depositing it at the existing Burford Bank, a site designated for depositing "inert" material.

"When the Alexandra Basin sea bed is dredged, removing 470,000 cubic metres of contaminated material, this material, once recovered, gets bound with cementitious fibres, so it solidifies and can be used to infill berths 52 and 53," Garrett explains. Other stone and rock excavated can be re-used in motorway development.

#### **Bindon Blood Stoney**

One of the aspects of the ABR has a special place in Garrett's heart, however, unveiling some of the original mass concrete blocks installed by Bindon Blood Stoney, chief engineer of Dublin Port in the late 19th century, who also designed some of the city's major bridges, including O'Connell Bridge.

"He is one of only three engineers in the world that I admire: the Bristol civil engineer, Isambard Kingdom Brunel, Robert Stephenson, who invented the famous Rocket train, and Bindon Blood Stoney," smiles Garrett. "Concrete comes in two forms: reinforced, which has steel through it, and mass

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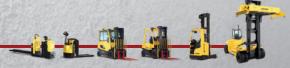


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The dredging project will take six years to deepen the port to provide an entrance channel with a depth of at least 10 metres.

concrete: Bindon was the first to design and build massive blocks for constructing piers from mass concrete. These blocks were 350 tonnes in weight. This was in the 1800s. We don't have a crane in the port today that could lift that weight and there are very few in existence. He sat the block on the quay and created a massive tripod, with ballast in the water, to lift the blocks and manoeuvre them into place. He was a very clever man.

"During this project, we will have to remove some of Stoney's blocks, and we are going to put them on display along part of the quay in a glass case, to show off the skills and expertise of this wonderful engineer and what he achieved."

Part of the project also involves excavating the Port's old graving or dry dock. "When we excavate the graving dock, it will look like a giant granite amphitheatre, which will be opened up to the public who will be able to see this magnificent feat of engineering."

#### **Managing the ABR Project**

To manage all the various tranches of these works, DPC have set up a Programme Management Office within the port headquarters, comprising of experienced in-house staff and external consultants. This office will manage the detailed programme for this complex project from start to finish, ensuring that costs, risks, safety, planning/ programme and project management are delivered on time and cost and constructed in a safe manner.

The PMO will also manage the numerous specialist consultants required, ranging from engineering design to environmental, historical, archaeological, waste remediation, planning, architectural, contamination and others.

The man at the helm of this vast and challenging enterprise, a "seasoned" civil and structural engineer, Garrett Dorman is highly experienced in project and program management, and has worked all over the world on massive developments. Indeed, Garrett has worked on some of the biggest engineering projects in the world, from Bermuda to London, including some closer to home, having worked on both terminals at Dublin Airport.

"I've had every kind of fancy title you can imagine," Garrett sighs, "from Director of Engineering to Projects Director. Here, I am the Projects Manager, and my role includes managing and delivering the ABR and all the capital projects within the Port. That is plenty to keep me busy.

"It is realistically simple to build a high rise office block or hotel or even to build an airport terminal because you have a 'ring fenced' site to operate on. We in the port do not have that luxury as we have all the existing operators to work around. So in effect, we will be in amongst the operators and their vessels, constructing and rebuilding the infrastructure, not an easy task, but we are looking forward to delivering this project, which is one of the largest infrastructure projects on the island of Ireland."





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## **Cruising to Victory**

Dublin Port is enjoying huge success with its cruise business, as almost 150,000 passengers visited the city in 2015.



The number of cruise liners docking at Dublin Port has grown exponentially since the first luxury ship did so back in 1995. Indeed, 2015 saw 148,891 visitors on 93 cruise ships visiting Dublin Port, up 8.1% and 5.9% respectively on 2014. The strong growth was driven, in particular, by the port handling cruise ships greater than 300 metres in length for the first time. Indeed, visiting cruise ships included some of the world's largest liners, such as the Royal Princess and MSC Splendida, measuring up to 333 metres long.

"2015 was the most successful year we have had to date in the history of the Port, which amongst others includes

cruise ships calling to Dublin," explains Pat Ward, Head of Corporate Services. "Previously, the company peaked in 2007, which was at the height of the Celtic Tiger, and now find ourselves back in the space of unprecedented growth levels."

What makes the cruise business really exciting is the potential for further growth, according to Pat: "Dublin is the cruise capital of Ireland and is considered a marquee port by the cruise industry globally, and the potential for us to grow the business in the coming years is there for all to see," he reveals.



#### **The ABR Project**

One significant boost to Dublin Port's cruise business will be the Alexandra Basin Redevelopment (ABR) project. July 2015 saw Dublin Port Company getting the green light from An Bord Pleanála for the development, which will see the creation of brand new berths that can easily accommodate quantum class cruise ships.

"It is essential that Dublin Port Company continues to facilitate passenger demand so the city remains the port of choice for cruise," Pat explains. "The ABR project provides the means for the necessary port infrastructure, such as longer,

deeper berths and new quay walls, that will allow Dublin to flourish, giving larger ships, including cruise liners, the modern facilities they need to dock within striking distance of the city. The arrival of winter cruises is a clear example of changing passenger patterns and demand for Dublin as Ireland's top cruise destination."

The ABR project will allow DPC to "take the biggest cruise ships in the world and bring them right into the city centre," Pat enthuses. "We will be in a position to put two cruise ships, up to 360 metres in length, side by side, alongside another 220-metre ship, right at the Eastlink Bridge."

The new generation of cruise ships are becoming both longer and deeper, Pat notes. "Dublin Port is a couple of hundred years old. Its infrastructure has been around for a long time and the ships of today are nothing like those of 30 or 40 years ago, let alone a hundred years ago. The ABR project is about putting in the infrastructure to meet the demands of today but also future proofing the port, because these ships are going to continue to get bigger. One of the challenges that we had in bringing in large cruise ships was not having a turning basin within the port and the ABR project will allow these huge ships, which are often described as a floating resort, to turn in the heart of the port and position themselves on berth at the closest point to the city centre for a short 15-minute stroll to O'Connell Street and just 150 metres from the Luas terminus. It is the ideal location for cruise passengers, providing ease of access to the city and/or the airport and the ideal location for maximising the potential the cruise industry presents."

#### **The Cruise Business Explained**

The international cruise industry is the fastest growing travel sector in the world, with a record 23 million passengers expected to set sail this year. From 2008 to 2013, the total output of the European cruise industry increased by 22% to €39 billion and the industry is confident level of growth is sustainable into the foreseeable future.

The cruise business effectively breaks down into two types of business: the Port of Call, whereby the cruise ship comes into the port for a short period of time, usually 8-14 hours, as part of a wider itinerary, before heading on to its next destination; and the Home Port or turnaround business is based on the port being the base for cruises to start and finish.

"While our Port of Call business has been increasing massively in recent years, we also see huge potential to increase Dublin's attractiveness in terms of Home Porting," reveals Pat, "particularly with the infrastructure we will have in place under the ABR project."

The Head of Corporate Services reveals that last autumn, he met with the biggest names in the cruise industry worldwide.

"They are very excited about what we are doing here in Dublin," he reveals. "We have positioned Dublin as a very viable alternative for cruise operators when they are looking at Home Porting. There are two major requirements that need to be met to develop your Home Porting business: (1) air connectivity and (2) proximity from the airport to the port. We are very fortunate to have both in place here in Dublin."





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#### **The American Connection**

The USA is the home of the global cruise industry and indeed more than 50% of cruise customers worldwide hail from America. This is good news for Dublin, Pat explains: "In 2014, there were over a million air seats from North America to Dublin, so there is a huge amount of connectivity between Ireland and North America already. Even just recently, Aer Lingus announced a number of new direct flights to the US. In fact, at this moment in time, we have greater air connections to the US than Germany. So that places us very well to capture the UK/Ireland and Baltic space for Home Porting, which presently resides in Southampton."

Southampton is widely regarded as the top Home Port in the UK. "Dublin is presenting itself as a real alternative to Southampton for the cruise industry," Pat notes. "The fact that we are just 15 minutes from the airport, door to door, through the Port Tunnel, is a huge advantage, and Dublin has so many amenities on its doorstep, which could give it the edge in terms of passenger attractiveness, when you consider that passengers embarking or disembarking a cruise ship may stay for up to a week in the Home Port either side of the cruise itself."

The Head of Corporate Services is confident that the number of cruise calls coming to Dublin can double over the next decade.

"In 2016, we are looking at welcoming 120 cruise ships to Dublin, which is more than 20% ahead of what was a fantastic 2015, so it's not pie in the sky when we talk about doubling our cruise business. We really believe that with the right infrastructure in place, with building relationships with the likes of Dublin City Council, City Business, Dublin Airport, the airlines themselves and of course the cruise industry, that we really will be able to deliver a doubling of this business in 10 years.

"We are talking about having 350,000 to 400,000 cruise visitors per year within a decade," he states. "If we develop the Turnaround/Home Porting business, many of those visitors could be staying for a week either side of embarking or disembarking their cruises, which will be a huge boost to the tourist industry and the wider economy."

Fáilte Ireland currently estimate that the cruise tourism business is worth approximately €40 million annually to the Irish economy, so a doubling of cruise passengers through Dublin Port would be hugely beneficial for the economy.

#### **The Greatest Day**

Pat proudly recalls July 23, 2015, which he describes as 'a hive of activity and the greatest day in Dublin Port's cruise history", when no fewer than four cruise ships were berthed in Dublin Port, disembarking 13,000 passengers. "Two of











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those ships were over 300 metres long, the Royal Princess at 330 metres and the Celebrity Silhouette, at 319 metres. Our Harbour team, pilots and tugs turned the two large ships 180 degrees and reversed them up the shipping channel and onto the berths. It was a fantastic sight to see," he remembers. "It was a wonderful day and a great credit to our staff in our Harbour function and Land Operations, who are the people who made it happen."

Describing it as "very much a taster of what is to come for the cruise industry in Ireland in the future", Pat reveals that Dublin's local economy was boosted to the tune of a whopping €1.3 million on that single day, thanks to the cruise passengers.

Two of the 120 cruise ships scheduled to call at Dublin Port in 2016 are from Disney, the first time the entertainment giant has included Ireland and indeed the Irish capital on its cruising itinerary. "We are delighted that they have chosen Dublin Port and we look forward to welcoming them in the years ahead," Pat exclaims.

The fact that Dublin has never had a dedicated cruise terminal has not affected the cruise business to date, according to Pat, as the majority of Dublin's cruise business has been Port of Call, for which you don't need a cruise terminal. If the Home Porting business should grow to the similar levels to that of the Port of Call, he admits that a cruise terminal/facility in the Port could be a possibility.

"We look very closely at any capital project and the return on investment we would expect to achieve," he says. "Even though our cruise business has delivered significantly for the local economy, it would not be in the space where building a cruise terminal would deliver for us, at this time. That's not to say that we shouldn't explore the options at Berth 18, located next to the Fastlink Bridge."

#### **A Changing Business**

The cruise business itself has changed in recent years, Pat admits. Like many other sectors, the cruise industry has seen a number of operators merge and amalgamate, to the point where it is now "rather a small family globally, ran by a number of companies".

"It is hugely important to us that we have a very fluid relationship with the cruise operators," he reveals. "If there is anything we can do to help enhance the passenger experience and make it more successful, they know they can talk to us. Our role, put simply, is to provide the infrastructure to meet the demands of our customers, now and into the future."

According to Pat. Cruise passengers too have changed: "At one point in time, cruising would have been considered a luxury holiday for those in retirement but that's no longer the case," he explains. "Nowadays, you have young and old, independent travellers, couples and families. Cruising is no longer for the elite of society. It is a very affordable holiday for families.



"The ships have been described as floating hotels and even that does not do them justice," he continues. "They are absolutely fantastic. You could have a theatre on-board running two shows each evening, which can facilitate 2,000 guests, as well as a variety of restaurants, bars, games rooms, putting greens, gyms, swimming pools, and even movie screens on the top deck, so passengers can watch a film under the stars."

It is not just passenger numbers that are growing: the cruise season itself is lengthening. "Traditionally, the cruise season would have ran from May until the end of September. More recently, however, we have seen it commence in January and stretch out to December," Pat states. "There are now cruises which specialise in UK and Irish Christmas markets, for example, which are proving very popular."

So just what is it that makes Dublin such a popular cruise destination? "Well it's not the weather," laughs Pat. "People are coming here for the culture, the history, the food and drink and of course for the friendly welcome they receive. There has been a fundamental shift in the dynamic of the cruise industry, who recognise that not everybody wants to go to the Caribbean and sit in the sun: there are people who want more adventurous or cultural cruise holidays, and we have done very well in Ireland, and Dublin in particular, in promoting our product and brand. Long may Dublin continue as a destination of choice."



Pat Ward, Head of Corporate Services, Dublin Port Company.











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## Securing **Dublin Port**





Being a Seveso site means that Dublin Port is the site of large-scale training exercises, involving Gardaí, Dublin Fire Brigade, HSE and all the emergency services, as well as Dublin Port Company staff.

From road traffic accidents to shoplifting in the duty-free stores, suspicious vehicles to puppy trafficking, every day brings different challenges for Thomas Kavanagh, Security Manager at Dublin Port Company. "There is no such thing as a typical day: It just doesn't exist," the affable Security Manager laughs. "Every single day is different. You never know what is going to happen from one day to the next."

On the day we spoke to Thomas, his biggest out-of-theordinary issues involved a passenger attempting to purchase goods using a stolen credit card in one of the passenger terminals, as well as traffic diversions on one of the Port's main roads, due to construction work. A couple of weeks later, Thomas and his team were back in the news when 18 puppies were discovered in the boot of a car at the Port.

While certain days follow a particular routine, depending on the type of traffic using the port, from deliveries of new cars to passenger ferries or cruise liners, each individual ship brings different challenges for Thomas and his team.

Early in the year, huge volumes of new cars move through the Port. The new Trade Car Facility, which opened in October 2014, made the security team's job much easier. Concentrating the car deliveries into one area frees up a lot of space and easies traffic elsewhere in the Port, as well as giving Thomas and his team more control over car deliveries, with the result that the vehicles themselves are even more secure.

"The challenge we have is that the cars themselves have to travel further from the ship, which means we have to man traffic junctions," Thomas reveals. "It's something we do regularly and we do well but we need to ensure we allocate resources to it to make sure it continues to run smoothly. The number of cars coming into the Port is growing, and our job is to get them in safely, get them processed and collected."

#### **Seasonal Changes**

Indeed, the Security Manager reveals that much of his team's work is seasonal in nature. Early in the new year, the car trade is extremely busy but maybe a little quieter operationally, while the mid six months of the year, from April to September, is the busiest cruise liner season, with approximately a hundred passenger-laden liners docking at Dublin.

When Thomas started in his role, staff at Dublin Port considered anything over 200 metres to be "a monster ship".

"Now, we consider 200 metres a small ship, a 250-metre ship is a breeze and many of the cruise liners coming into the Port are significantly over 300 metres. But we now have a very smooth, streamlined operation. Usually, when a cruise liner comes in, I will talk to the security officer on the ship and lay down what we need them to do and the rules to be observed. Then the ship comes alongside the quay, gangways go up, and coaches are designated to one area, shuttle buses to another and taxis to another. It presents challenges sometimes, but in general, it works like clockwork. One particular day, on July 23, 2015, we had four extremely large cruise liners in a single day and we had to berth one of them on the South Quay, so we re-built our operation over there."

Because Dublin Port doesn't yet have a designated cruise liner terminal, Thomas and his staff rely on bringing the bulk of the cruise liners into the working area of the Port. "To prepare the working area for a cruise liner is a challenge," he reveals. "For example, Berth 33 is where we put the largest of the liners, and it could be packed with trailers and containers in the days before a cruise liner arrives; so first of all, we have to get them cleared. Then the area is secured using containers as a border: we get great assistance from the stevedore companies in preparing this. Prior to 2007, passengers could get off a cruise liner and go wandering through the Port.

However, we have put a system in place whereby passengers only have one way in and one way out of the Port."

#### Close Relationship with Gardaí

Once the Cruise Liner season is over, the security team have another challenge: Halloween, when the Port becomes "a hive of activity for young people looking for fuel for their bonfires", smiles Thomas. "I'm not talking about one or two children: there could be up to 30 of them. I understand the attraction for the children but this is a working environment with huge volumes of HGV's, so protecting life, limb and property for all during that period is testing."

Ensuring said fuel-hunters leave empty handed can be a significant challenge but Thomas pays tribute to the close relationship his team have with the Gardaí, who intervene if these groups of youths refuse to leave the premises.

However, Dublin Port's security team liaise with the Gardaí and with Revenue Commissioners' Customs & Excise division throughout the year and not just at Halloween.

"We have a fantastic relationship with the Gardaí and with Revenue," Thomas notes. "We would be called regularly to incidents that happen on ships, including thefts in the duty free shops, where we might interview a suspect until the Gardaí arrive, for example. We also have regular requests from the Gardaí and Revenue for CCTV footage."

#### **Superb CCTV System**

Dublin Port has an ANPR (Automated Number Plate Recognition) system in place, whereby every vehicle that comes into or leaves the Port is photographed, but it is never used unless needed in relation to an incident. For example, the Gardaí might contact Thomas' team if they are looking for a particular car registration number: DPC security can then tap into the ANPR system and it will reveal whether the car has entered the Port or not. Similarly, if the Gardaí are interested in a particular vehicle, DPC staff can input that registration into the system and will be notified if that vehicle enters the Port: "We can then follow it on camera, so the Gardaí can either come into the Port or intercept the vehicle when it leaves," Thomas explains.





The security team at Dublin Port Company enjoy a tremendous relationship with the Gardaí.

Indeed, technology plays a huge part in the security operation at Dublin Port. DPC's CCTV system is "exceptional", according to Thomas, including almost 200 cameras throughout the Port. A security officer or a harbour police officer monitors the camera system all the time, via a bank of monitors which allows them to observe the entire port. Each of the cameras in the port records what it views and the recorded material stays on the system for 30 days unless it is saved by a user. Footage from DPC cameras has been used in court. One incident involved a serious assault in the city, whereby the person accused of the assault denied having been in a vehicle involved in the incident, yet footage from the Dublin Port cameras proved that the person was in the vehicle involved and helped lead to a successful conviction.

#### **Uncovering Smuggled Goods**

Smuggling is another big issue in the Port, from tobacco to even counterfeit perfume, with Revenue's Customs & Excise department uncovering a huge shipment of counterfeit perfume from China in the run-up to Christmas 2015.

Thomas cites another high profile seizure, where the MV Shingle was found to be carrying €14 million worth of illegal tobacco in June 2014: "I was impounded at Drogheda and brought to Dublin Port because the cargo was so valuable.

"We work very closely with Customs & Excise, who sometimes use the Port's Vessel Tracking System (VTS) to monitor a suspicious ship, or may place people incognito in the Port to monitor suspicious activity," Thomas reveals.

#### Legislation

As well as monitoring day-to-day issues, security at Dublin Port has to adhere to the International Shipping and Port Security (ISPS) Code, which was introduced in 2004 to govern security in international ports and ensure that anybody

going on a ship must pass through a control point, similar to anyone travelling by plane. Even more stringent is the EU Directive covering maritime travel.

"The ISPS generally deals with the ship-to-shore interface but the EU Directive also includes the relationship with the Port's neighbours, so in our case that includes the residents in Ringsend, East Wall, the 3 Arena etc," explains Thomas. "Based on this legislation, ports have to draw up a security plan. Most ports are a single entity but we have multiple entities because we have different terminals, so there is a security plan drawn up for each of those locations, which are combined to form a port security plan. "

These plans are drawn up and presented to the Marine Survey Office at the Department of Transport for approval: while the overall port security plan has to be updated every five years, each individual terminal must review its security plan annually.

The security staff also carry out regular drills and exercises around security issues. Following an industrial accident in Seveso in Northern Italy in 1976, European industrial safety legislation, known as the Seveso II Directive, was drawn up, aimed at improving the safety of sites containing large quantities of dangerous substances.

The presence of the oil farm at Dublin Port makes it, for example, a Seveso site. This necessitates regular massive training exercises, involving Gardaí, Dublin Fire Brigade, HSE and all the emergency services, and Dublin Port Company staff, where they take part in mock disasters and then evaluate their performance and how it could be improved.

Thomas also chairs the Port Security Advisory Committee, a quarterly meeting of DPC security, Gardaí, Revenue and other interested parties who meet and are advised of the latest





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security concerns. "It's a chance to share information among the interested parties, which could include everything from traffic updates to industrial action, drills and exercises and crime," Thomas notes.

#### **Securing the Port**

DPC's security team includes both Harbour Police and contracted port security, and Thomas' staff includes approximately 35 people. The incumbent security contractor, G4S, has a full-time on-site Security Manager, Mark Nathan, in the Port, who works hand-in-glove with Thomas to ensure the smooth operation of security: "Mark is my right arm and without him I wouldn't sleep nights. In fact, our Security team are an incredible group and I rely on each and every one of them.

"We have several roles to fulfil," the Security Manager summarises. "Firstly, there is the core harbour police role, where we have three daily shifts, each of which includes three men. In total, there are five teams, or 15 men, to fulfil the harbour police function, working six days on/ four days off. Other roles include traffic management, particular when there are car boats running, search teams and staff to check tickets at the passenger ferry terminals. At any given time, we have people all over the Port, in various locations, performing different roles, and that's before you take into account cruise liners, while we might have to draft in additional security staff for special events like Riverfest or the Tall Ships. One thing's for sure, it's never boring."

#### It's a Dog's Life: Puppies Rescued at Dublin Port

JANUARY 12 saw Dublin Port in the news, when it was discovered that 18 puppies were confiscated from a vehicle whose driver was attempting to export them illegally to the UK, the latest in a series of high profile puppy seizures at the Port.

"It's not unusual for puppies from Ireland to travel to the UK legally, because there is a huge demand there for them. For example, Dogs Trust, who are a fantastic organisation, legally and regularly send puppies to the UK via the Port," reveals Thomas Kavanagh. "But last year, one of our security staff stumbled across puppies being shipped to the UK, which he thought were suspicious, so we decided to keep an eye on it." This sparked off a series of puppy finds and recoveries in the Port.

A few weeks later, another member of Thomas' team saw a car driving suspiciously in the Port and when it was stopped, there were 11 Jack Russell pups in the back of the car.

"I phoned the DSPCA, who said that under no circumstances, were we to allow the woman to leave with the pups," Thomas recalls. "We phoned the Gardaí, who came to the scene. At this point, the woman told us to keep the pups and threw them out on the ground, before driving off. We gathered the pups and put them into the Garda car, and then brought them to Dogs Trust."

Over the following weeks, Thomas' staff intercepted up to 40 puppies, including Jack Russells, Huskies, Bichon Frises and Yorkshire Terriers. "Some of them were only four weeks old and they weren't supposed to be taken from their mother until they were 12 weeks old at the earliest," reveals Thomas, whose staff rescued so many puppies that they set up a cabin as a temporary kennel for the dogs.

"It's a horrible business, but hopefully the dog traffickers are getting the message that Dublin Port is not the place to try to smuggle puppies out of Ireland," concludes Thomas.



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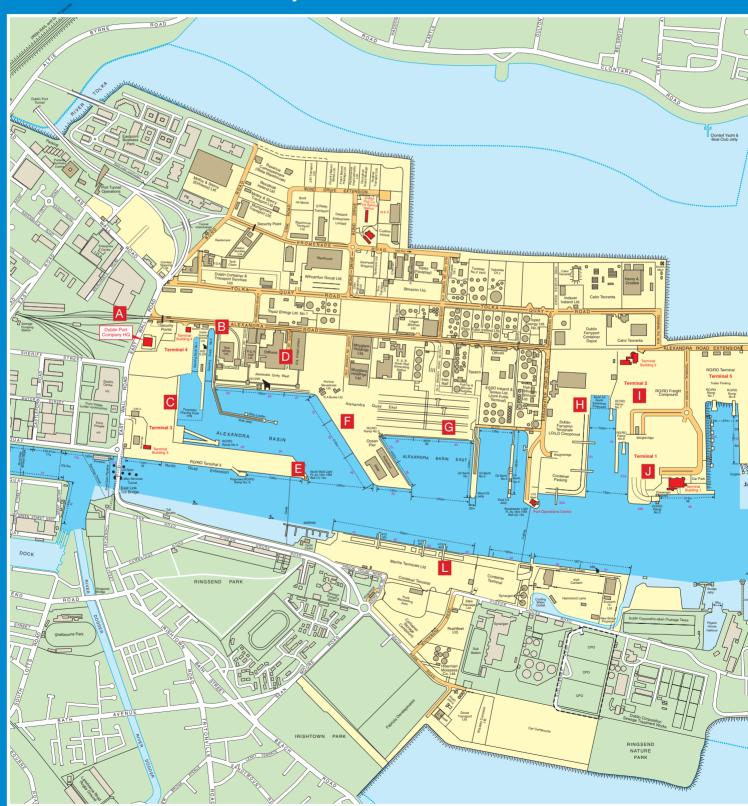
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## Map of Dublin Port

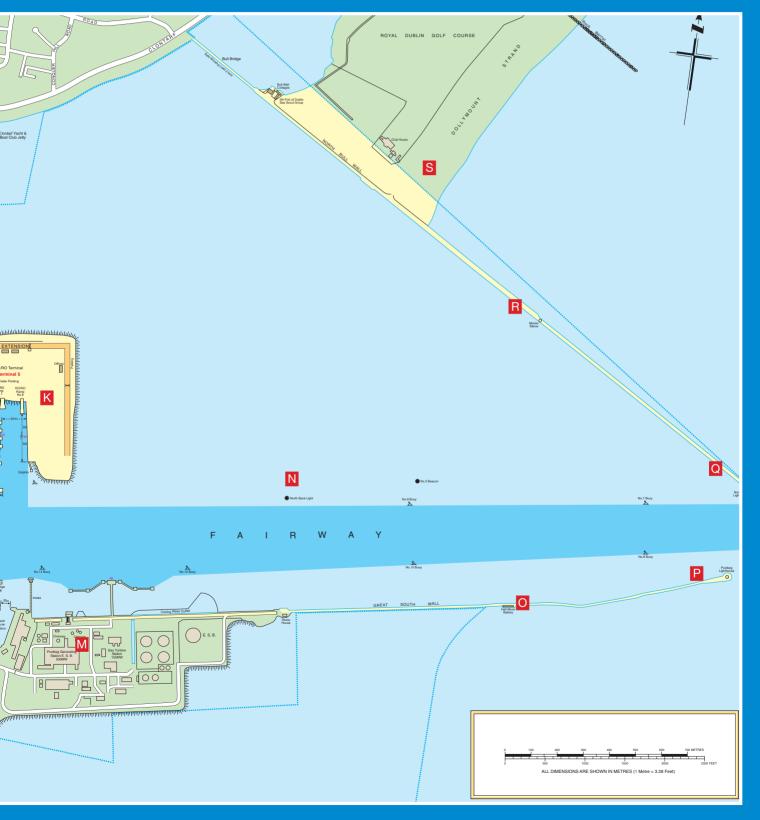
Dublin Port is a 260 hectare area spanning both North and South banks of the River Liffey.



- A Dublin Port Company HQ
- B Graving Dock
- C Terminal 3: RoRo P&O
- D Dry Bulk Area
- **E** North Wall Lighthouse
- F Ocean Pier West: Cruise Ships
- G Alexandra Quay West: LoLo

- H DFT
- Terminal 2: RoRo Stena Line
- J Terminal 1: RoRo Irish Ferries
- K Terminal 5: RoRo Seatruck
- LoLo Marine Terminals
- M ESB Chimneys
- North Bank Lighthouse

- O Great South Wall
- P Poolbeg Lighthouse
- Q North Bull Lighthouse
- R North Bull Wall
- S Bull Island



## Port Facilities & Services

## Dublin Port Company (under the Harbours Act, 1996) vested on the 3rd March 1997.

#### **Limits of Dublin Port**

Under the 1996 Harbours Act, the limits of Dublin Port consist of the waters of the River Liffey commencing from and including Rory O'Moore Bridge and extending to an imaginary straight line drawn from the Baily Lighthouse on the north in the County of Dublin and extending through the North Burford Buoy and thence through the South Burford Buoy and thence to Sorrento Point on the south, including all bays, creeks, harbours and all tidal docks within such area.

#### **Anchorage**

For information on anchoring positions please refer to the admiralty chart No. 1415.

Anchorage is position 53°n 21, 6°w 12, sand over stiff marl. This anchorage is very exposed and a vessel should be prepared to leave at the first sign of a shift of Wind E.

#### Approach and berthage

The approach to the harbour of Dublin is well lighted and of easy access. There is a channel across the Bar which is 7.8m below LAT. Vessels drawing up to 10.2m can enter the port at high water of normal tides. Vessels drawing up to 7m can enter at any state of tide.

Vessels proceeding to the Dublin Bay Buoy, which is a Roundabout Buoy to be passed on the vessel's port side, should proceed through the Traffic Separation Scheme, which was introduced during 1997. The scheme comprises of two elements, an inward lane and outward lane at North Burford and South Burford. For larger craft, this is the only access to Dublin Port.

#### **Tides**

Mean H.W. Springs Dublin Bar 4.1m. Mean H.W. Neaps, 3.4m. Prevailing winds are S.W.

All depths refer to chart datum. This datum is referred to as C.D. and is 2,51m below Ordnance Datum Malin Head.

#### **Verification of depths**

Verification of depths in the port should be obtained from Port Operations, Eastern Breakwater Road, Dublin 1. Tel: (01) 887 6028/887 6033.

#### **Pilotage**

Dublin Port Company is the pilotage authority for the Dublin Pilotage District. The limits of the compulsory Pilotage District are the waters of the River Liffey below Butt Bridge and so much of the sea westward of the sixth meridian West longitude as lies between the parallels of latitude passing through the Baily Lighthouse on the North and through Sorrento Point on the South, including all bays, creeks and harbours and all tidal and enclosed docks within such area. The pilotage service is based in the Port Operations building, situated on the Eastern Breakwater Road, and is operated by direct boarding fast cutters each capable of speeds up to 20 knots. Dublin Port V.T.S. operates VHF channel 12.

To request a Pilot, contact Dublin Port Company shipping desk at Tel: (01) 887 6028/887 6033.

#### **Towage**

Dublin Port Company operates two tugs with twin Voith propellers and are 50 tonne bollard pull. The tugs also have a fire fighting capacity.

To request towage, contact Dublin Port Company shipping desk at Tel: (01) 887 6028/887 6033 or VHF channel 12.

#### **Graving Dock**

Dublin Port has one operational graving dock, situated to the west of Alexandra Quay. The dock is 202 metres long and can be divided to accommodate small or medium sized vessels.

For graving dock services, contact Dublin Graving Docks Ltd. Alexandra Road. Tel: (01) 887 9506.

#### **Stevedoring**

Eight private companies are licensed by Dublin Port Company to provide stevedoring services in the port.

Dublin Ferryport Terminals	<b>Dublin Stevedores</b>	
Irish Ferries	Marine Terminals Ltd.	
P&O Ferries	Portroe Stevedores	
Stena Line	Seatruck Ferries	

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# Trade Statistics Record Year for Dublin Port

## Dublin Port Company sees the benefits of economic recovery, as cargo volumes grow 6.4% to make 2015 a record year.

Dublin Port Company recently published trade statistics for 2015, which show a record year for trade at Dublin Port, with growth year-on-year of 6.4%.

Total throughput for 2015 was 32.8 million gross tonnes, with 7,166 ship arrivals in the year, exceeding the port's previous record levels of 2007.

There was balanced growth between imports and exports in 2015. Imports were up 6.5% at 19.5 million gross tonnes, while exports were ahead by 6.4% at 13.3 million gross tonnes.

#### **Summary of Throughput Statistics – 2015**

	2015	2014	% Var
Throughput (gross tonnes)	32.8m	30.9m	6.4%
Imports (gross tonnes)	19.5m	18.4m	6.5%
Exports (gross tonnes)	13.3m	12.5m	6.4%
Ro-Ro (freight units)	877,826	821,876	6.8%
Lo-Lo (TEUs)	614,226	565,703	8.6%
Ferry Passengers	1,797,691	1,710,275	5.1%
Tourist Vehicles	500,628	462,215	8.3%
Trade Vehicles	102,149	81,169	25.8%

#### **Strengthening of Domestic Demand**

In previous years, growth in Dublin Port was driven by increasing exports. However, in 2015, the strengthening of domestic demand saw imports rise slightly faster than exports. Volumes in 2015 were 1.9 million gross tonnes or 6.1% higher than in the Port's previous record year of 2007, at the height of the boom.

There was particularly strong growth in imported trade vehicles, with 102,149 vehicles imported, an increase of 25.8% in the year.

The unitised modes also grew very strongly, with Ro-Ro units growing by 6.8% to 877,826 units. This is 145,000 more than came through Dublin Port in 2007. The volume in Lo-Lo containers increased by 8.6% to 614,226 TEU.

#### **Strong Growth in Tourism**

On the tourism side, 1.8 million ferry passengers travelled through the port in 2015, representing a 5.1% increase on 2014 and placing Dublin Port on a par with major national airports, including Cork and Shannon.

In addition, 2015 was a strong year for the port's cruise business, with 149,000 visitors on 93 cruise ships, up 8.1% and 5.9% respectively on 2014. The strong growth was driven, in particular, by the port handling cruise ships greater than 300m in length for the first time.

#### **An Exceptional Year**

"2015 was an exceptional year for Dublin Port, with a 6.4% increase in cargo volumes," noted Eamonn O'Reilly, Chief Executive, Dublin Port Company. "We have seen growth over the past three years of 17.3% and are now well ahead of where we were at the height of the boom in 2007.

"It is timely that we received planning permission for the Alexandra Basin Redevelopment Project during 2015. This is the single largest port development project ever in the country and will help us to continue to cater for the expected high levels of growth in future years," he continued. "We also finalised debt facilities of €100 million with the EIB during 2015 and succeeded in securing €23 million in grant funding from the EU for our investment plans."

The CEO acknowledged that Dublin Port Company's growth in recent years has been driven by the investment decisions of their major customers, including Irish Ferries, Stena Line, Seatruck, CLdN, Doyle Shipping Group and Ecocem.

"It is essential that we match these customers' commitments," he concluded, "by investing in nationally important port infrastructure in Dublin, the country's premier port."

#### Dublin Port 2015 Full Year and Q4 Throughput Statistics

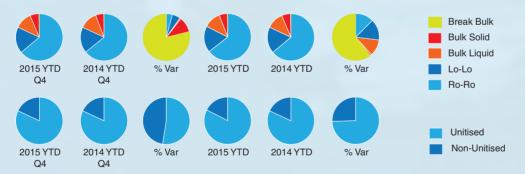
#### **Gross Tonnage by Import/Export**

'000 Gross Tonnes	2015 <b>Q</b> 4	2014 Q4	% Var	2015 YTD	2014 YTD	% Var
Imports	5,107	4,731	7.9%	19,549	18,358	6.5%
Exports	3,367	3,084	9.2%	13,289	12,493	6.4%
Total	8,474	7,815	8.4%	32,838	30,851	6.4%



#### **Gross Tonnage by Cargo Mode**

'000 Gross Tonnes	2015 <b>Q</b> 4	2014 Q4	% Var	2015 YTD	2014 YTD	% Var
Ro-Ro	5,423	5,022	8.0%	21,190	19,792	7.1%
Lo-Lo	1,532	1,383	10.8%	5,961	5,512	8.1%
Bulk Liquid	982	968	1.4%	3,857	3,625	6.4%
Bulk Solid	522	436	19.6%	1,780	1,885	-5.6%
Break Bulk	15	6	143.8%	50	37	34.2%
Total	8,474	7,815	8.4%	32,838	30,851	6.4%
Unitised	6,955	6,405	8.6%	27,151	25,304	7.3%
Non-Unitised	1,519	1,410	7.7%	5,687	5,547	2.5%
Total	8,474	7,815	8.4%	32,838	30,851	6.4%



#### **Ro-Ro Freight Units**

Units	2015 Q4	2014 Q4	% Var	2015 YTD	2014 YTD	% Var
Ro-Ro Freight	227,722	212,101	7.4%	877,826	821,876	6.8%



#### **Lo-Lo Freight**

TEUs	2015 Q4	2014 Q4	% Var	2015 YTD	2014 YTD	% Var
Lo-Lo TEU	161,234	146,447	10.1%	614,226	565,703	8.6%



#### **Trade Vehicles**

Units	2015 Q4	2014 Q4	% Var	2015 YTD	2014 YTD	% Var
Trade Vehicles	31,666	22,770	39.1%	102,149	81,169	25.8%



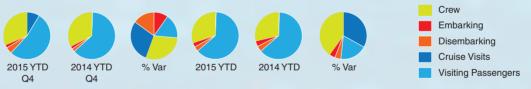
#### **Tourism**

Units	2015 Q4	2014 Q4	% Var	2015 YTD	2014 YTD	% Var
Passengers	344,161	342,551	0.5%	1,797,691	1,710,275	5.1%
Vehicles	101,643	99,536	2.1%	500,628	462,215	8.3%



#### **Cruise Liners**

2015 <b>Q</b> 4	2014 <b>Q</b> 4	% Var	2015 YTD	2014 YTD	% Var
4	6	-33.3%	93	86	8.1%
2,429	5,577	-56.4%	100,682	96,222	4.6%
2	175	-98.8%	728	1,058	-31.0%
1	188	-99.5%	718	1,094	-34.4%
1,424	2,864	-50.3%	47,491	43,263	9.8%
3,854	8,629	-55.3%	148,891	140,579	5.9%
	2,429 2 1 1,424	4 6 2,429 5,577 2 175 1 188 1,424 2,864	4 6 -33.3% 2,429 5,577 -56.4% 2 175 -98.8% 1 188 -99.5% 1,424 2,864 -50.3%	4     6     -33.3%     93       2,429     5,577     -56.4%     100,682       2     175     -98.8%     728       1     188     -99.5%     718       1,424     2,864     -50.3%     47,491	4     6     -33.3%     93     86       2,429     5,577     -56.4%     100,682     96,222       2     175     -98.8%     728     1,058       1     188     -99.5%     718     1,094       1,424     2,864     -50.3%     47,491     43,263



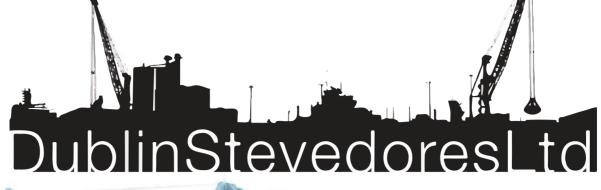
#### **Explanatory Notes**

- 1 Gross tonnage includes the weight of goods, their immediate packaging and (for the unitised modes) the tare weight of containers and freight trailers. Gross weight is derived from ships manifests and differs from the weight of goods shown by the CSO in its statistics. CSO tonnages for the unitised modes do not include the tare weights of containers and freight trailers.
- 2 Ro-Ro freight units include containers shipped on mafi trailers, cassettes or slave trailers.
- 3 Tonnages, units and TEU include both international trade and goods moved between Irish ports
- 4 Trade vehicles includes cars imported through Dublin but shipped onwards by road to Northern Ireland.
- 5 Tourist vehicles on ferries includes cars, vans, coaches and motorcycles.
- 6 Bulk solid includes a range of commodities such as lead and zinc ore concentrates, animal feed, cement products, peat moss, scrap metals.
- Bulk liquid includes both petroleum products and products such as molasses
- 8 Break bulk is a catch all for a range of miscellaneous goods including wind turbine components, loose steel pieces (such as pipes) and heavy components (such as transformers).

## Ro Ro Terminals

Terminal	Operator	Berth Details	Facility Details	Contact Details
T1	Irish Ferries	Berth No.49 Length 213m Depth at L.A.T. 11m standard	No. 5 ramp Two Tier Ramp Upper Deck Length of Shore Ramp 43m Width of Shore Ramp 10.8m Maximum Vehicle Load 40 tonnes Lower Deck Length of Shore Ramp 40m Width of Shore Ramp 20m Maximum Vehicle Load 180 tonnes	+353 1 607 5700 www.irishferries.com
T1	Irish Ferries	Berth No. 51A Length 190m Depth at L.A.T. 8m standard	No. 9 ramp Single Tier Ramp Length of Shore Ramp 45m Width of Ramp 20m Maximum Vehicle Load 180 tonnes	+353 1 607 5700 www.irishferries.com
T1	Isle of Man Steam Packet Company	Details as above	Details as above	00 44 8722 992992* www.steam-packet.com
T2	Stena Line	Berth No. 51 Length 205m Depth at L.A.T. 8m standard	Ramp No. 1 Two Tier Ramp  Upper Deck Length of Shore Ramp 49m Width of Shore Ramp 12m Maximum Vehicle Load 40 tonnes Lower Deck Length of Shore Ramp 46m Width of Shore Ramp 20m Maximum Vehicle Load 180 tonnes	+353 1 907 5555 www.stenaline.ie
Т3	P&O Ferries	Berth No. 21 Length 238m Depth at L.A.T. 7m standard	Ramp No. 6 Single Tier Ramp Length of Shore Ramp 41m Width of Shore Ramp 20m at ship end Maximum Vehicle Load 180 tonnes	+353 1 876 2345 www.poferries.com

<sup>\*</sup> Calls to this number are charged at 11 pence per minute, plus your telephone company's access charge.





## Ro Ro Terminals

Terminal	Operator	Berth Details	Facility Details	Contact Details
T4	P&O Ferries	Berth No. 25 Length 290m Depth at L.A.T. 7.7m Standard Depth	Ramp No. 4 Double Tier Ramp  Upper Deck Length of Shore Ramp 41.5m Width of Shore Ramp 10.5m Maximum Vehicle Load 40 tonnes Lower Deck Length of Shore Ramp 46m Width of Shore Ramp 20m Maximum Vehicle Load 180 tonnes	+353 1 876 2345 www.poferries.ie
T5	Seatruck Ferries	Berth No. 52 Length 200m Depth at L.A.T. 8m Standard Depth	Ramp No. 7 Single Tier Ramp Length of Shore Ramp 35m Width of Shore Ramp 20m at ship end Maximum Vehicle Load 180 tonnes	+353 1 823 0492 www.seatruckferries.com
Т5	Seatruck Ferries	Berth No. 53 Length 156m Depth at L.A.T. 5.9m Standard Depth	Ramp No. 8 Single Tier Ramp Length of Shore Ramp 60m Width of Shore Ramp 30m at ship end Maximum Vehicle Load 220 tonnes	+353 1 823 0492 www.seatruckferries.com
Ocean Pier	CLdN ro ro SA	Berth No. 36/37 Length 200m Depth at L.A.T. 10.3m Standard Depth	Ramp No. 2 Single Tier Ramp Length of Shore Ramp 60m floating Linkspan Width of Shore Ramp 31m Maximum Vehicle Load 200 tonnes	+353 1 856 1608 www.cldn.com

Actual depths for all berths will be less than standard depths and these latest sounded depths are available from the Harbour Masters office



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Egis Projects is deploying the latest technology to improve the efficiency of freight journeys, lower operational costs and improve safety on our roads.

In a new development from the Egis Group in France, its fully-owned subsidiary Easytrip Services is offering global road transport and smart mobility services. With a background in road operations, road maintenance and international tolling developments, Easytrip understands the needs of the transport and mobility industry. Moreover, our over 30 years of experience within the heavy goods vehicle (trucks) and mass market (light vehicles) industry has helped us to become a world class leader providing services such as toll solutions, tax refund, excise duty refund

service, and ferry, rail

and tunnel bookings.

Through its organisation of international and local subsidiaries, Easytrip is addressing a wide range of different markets with the focus on business-tobusiness and businessto-customer services. It has capitalised on its valuable customer knowledge, technical expertise and developed

competencies in customer relationship management.

Because of fast-growing markets and the increase of the speed of changing business models, Easytrip also created the ability to work with integrated partnership environments, hence enlarging not only our scope of service but also strengthening competitive values. Easytrip Services is recognised as a leading player in the sector and is present across the whole value chain of road services.



For more information on Easytrip Services, please contact Marcel van Empel via email: marcel.van-empel-ext@egis.fr

Egis Project's Ireland office can be contacted as follows: Unit 24, Northwood House Northwood Business Park Santry, Dublin 9 Tel: +353 1 469 1200, Email: information@egis.ie, Web: www.egis.ie

# Lo Lo Terminals

Terminal	Operator	Berth Details	Facility Details	<b>Contact Details</b>
Dublin Ferryport Terminals	DFT	Berth No's 50 & 50A Total Berth Lengths 580m Depth at L.A.T. 9.00-11.00m standard	Cranes 3 x 40 tonnes gantry 1x 45 tonnes gantry Reachstacker 1 x 45 tonnes Second-handling equipment 8 x 40 RTG cranes 1 x 12 FLT 4 x 18 tonne empty handlers Reefer Points 250 Area 15.2 hectares	+353 1 607 5700 info@dft.ie
Marine Terminals Ltd	MTL	Berth No's 41,42,43,44,45 Total Berth Lengths 700m Depth at L.A.T. 8.50-11.00m standard	Cranes 3 x 45 tonne Ship to Shore Gantry Second-handling equipment 4 x 40 tonne RMG Reefer Points 300	+353 1 618 5417 www.peelports.co.uk
Ocean Pier	Doyle Shipping Group	Berth No.'s 32,33,38,39,40 Total Berth Length 900m Depth at L.A.T. 10m	Cranes 1 x STS 45 Ton Panamax Capacity 2 x 400 mobile (104 tonnes SWL) 3 x 250 mobile (65 tonnes SWL) 6 x 250 tonnes RTG's Second-handling equipment 3 Kalmar reachstackers 20 tugmasters 11 Novatech Flexmasters Reefer points 300 Warehousing 300,000sq feet	+353 1 836 5736 www.doyleshipping.ie

# Bulk

Terminal	Operator	Berth Details	Facility Details	Contact Details
Ocean Pier Dry Bulk/ Break Bulk	Common User	Berth No's 29,30,31,32,33,34	Cranes 2 x 400 mobile (104 tonnes SWL) 3 x 250 mobile (65 tonnes SWL)	+353 1 887 6000 www.dublinport.ie
South Bank Quay	Common User	Berth 46 & 47	Cranes 2 x 250 mobile	+353 1 887 6000 www.dublinport.ie
Liquid Bulk	Common User	Berths 4 oil jetties	30 Hectare oil zone storage capacity 330,000 tonnes facilities for handling oil products, bitumen, chemicals and liquid petroleum gases linked to a common user pipe line system.	+353 1 887 6000 www.dublinport.ie
Alexandra Basin East	Common User	Berths 29,30 & 31		+353 1 887 6000 www.dublinport.ie

# **Cruise**

Terminal	Operator	Berth Details	Facility Details	Contact Details
Cruise	Various	Berths 18,33,36/37,		+353 1 887 6000
Tourism		35,38,39,40		www.dublinport.ie
		Smaller vessels can	Smaller vessels can	
		berth up river close to		
		the city		



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IRISH FERRIES

# Ro Ro Schedule

## **Irish Ferries**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Cruise Ferry (Passenger & Freight)	Holyhead	2	05.55	08.05	Terminal 1
<b>Tel:</b> +353 1 607 5700			17.25	20.55	
Fast Ferry (Passenger)	Holyhead	2	13.40	14.30	Terminal 1
<b>Tel:</b> +353 818 300 400			19.15	08.45*	
Epsilon	Holyhead		11.30 (Tue-Sat)	14.15	Terminal 1
<b>Tel:</b> +353 1 607 5700			23.15 (Tue-Fri)	01.55*	
	Cherbourg		11.00 (Mon)	15.30 (Sat)	Terminal 1

## **Stena Line**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Stena Superfast X (Passengers &	Holyhead	2	12.10	02.15	Terminal 2
Freight)			23.45	15.10	
<b>Tel:</b> +353 1 907 5555					
Stena Adventurer (Passengers &		2	05.45	08.20	
Freight)			17.05	20.40	
<b>Tel:</b> +353 1 907 5555					

## **P&O Ferries**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Cruise Ferry (Freight)	Liverpool	3	05.15	09.15	Terminal 3
<b>Tel:</b> + 353 1 876 2345			10.30	15.00	
(Passengers)			17.30	21.30	
<b>Tel:</b> +353 1 407 3434					

#### \* Next Day Sailing

Terminals 1 & 2 Ferryport, Alexandra Road, Dublin 1

Terminal 3 North Wall Extension, East Wall Road, Dublin 1

Terminal 4 Alexandra Road, Dublin 1

Terminal 5 Alexandra Road Extension, Dublin 1

Ocean Pier Branch Road North, Alexandra Road, Dublin 1

The above schedules are subject to change and should be checked with the ferry company at the time of booking.

# Ro Ro Schedule

## **Isle of Man Steam Packet Company**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Fast Craft Tel: 00 44 8722 992992*	Douglas		Seasonal	Seasonal	Terminal 1
(* Calls to this number are charged at 11 pence per minute, plus your telephone company's access charge.)					

## **Seatruck Ferries**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Cruise Ferry (Freight)	Liverpool	3	05.30 (Tue-Sat)	09.30	Terminal 5
<b>Tel:</b> +353 1 823 0492			17.00 (Daily)	21.00	
				19.00 (Mon)	
			02.00 (Wed-Fri)	05.30	
	Heysham	1	11.15 (Mon-Sat)	14:30	Terminal 5

## **CLdN** ro ro SA

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
ConRo Ferry	Zeebrugge	1 Thursday	12.00	18.00	Ocean Pier
	Zeebrugge	1 Saturday	10.00	16.00	Ocean Pier
	Zeebrugge	1 Sunday	19.00	23.59	Ocean Pier
	Rotterdam	1 Thursday	19.00	14.00*	Ocean Pier
	Rotterdam	1 Sunday	11.00	17.30	Ocean Pier
	Rotterdam	1 Monday (Lo Lo Only)	12.00	20.00*	Ocean Pier

## \* Next Day Sailing

Terminals 1 & 2 Ferryport, Alexandra Road, Dublin 1

Terminal 3 North Wall Extension, East Wall Road, Dublin 1

Terminal 4 Alexandra Road, Dublin 1

Terminal 5 Alexandra Road Extension, Dublin 1

Ocean Pier Branch Road North, Alexandra Road, Dublin 1

The above schedules are subject to change and should be checked with the ferry company at the time of booking.

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# LIEBHERR

# Lo Lo Schedule

## **European**

Country	Port	Frequency	Agent	Line	Contact Details
Belgium	Antwerp	2 sailings weekly 2 sailings weekly 1 sailing weekly 1 sailing weekly	CMA-CGM (Ireland) Ltd	BG Freight Line Eucon MSC CMA-CGM	+353 1 803 8700 +353 1 607 5700 +353 1 294 8704 +353 1 887 7400
Cyprus	Limassol	1 sailing weekly	Jenkinson Agencies	Borchard Lines	+353 1 816 3500
France	Le Havre Marseilles (Exports Only)	<ul><li>1 sailing weekly</li><li>1 sailing weekly</li></ul>	CMA-CGM (Ireland) Ltd Jenkinson Agencies	CMA-CGM Borchard Lines	+353 1 887 7400 +353 1 816 3500
Greece	Piraeus	1 sailing weekly	Jenkinson Agencies	Borchard Lines	+353 1 816 3500
Italy	Genoa (Exports Only) Salerno	<ul><li>1 sailing weekly</li><li>1 sailing weekly</li></ul>	Jenkinson Agencies Jenkinson Agencies	Borchard Lines Borchard Lines	+353 1 816 3500 +353 1 816 3500
Netherlands	Rotterdam	3 sailings weekly 2 sailings weekly 2 sailings weekly 4 sailings weekly 1 sailing weekly	Doyle Shipping Group  Seabridge Liner Agencies	Eucon X-Press CL Samskip/DFDS BG Freight Line Cosco	+353 1 607 5700 +353 1 819 2600 +353 1 631 0900 +353 1 803 8700 +353 1 678 7398
Portugal	Leixoes Setubal	<ul><li>1 sailing weekly</li><li>1 sailing weekly</li><li>1 sailing weekly</li></ul>	MacAndrews (Ireland) Ltd Jenkinson Agencies MacAndrews (Ireland) Ltd	MacAndrews & Co. Ltd Borchard Lines MacAndrews & Co. Ltd	+353 1 855 2644 +353 1 816 3500 +353 1 855 2644
Spain	Barcelona (Exports Only) Bilbao Castellon	<ul><li>1 sailing weekly</li><li>1 sailing weekly</li><li>1 sailing weekly</li></ul>	Jenkinson Agencies MacAndrews (Ireland) Ltd Jenkinson Agencies	Borchard Lines MacAndrews & Co. Ltd Borchard Lines	+353 1 816 3500 +353 1 855 2644 +353 1 816 3500
Turkey	Mersin Izmir Istanbul	<ul><li>1 sailing weekly</li><li>1 sailing weekly</li><li>1 sailing weekly</li></ul>	Jenkinson Agencies Jenkinson Agencies Jenkinson Agencies	Borchard Lines Borchard Lines Borchard Lines	+353 1 816 3500 +353 1 816 3500 +353 1 816 3500

## Irish Sea

Country	Port	Frequency	Agent	Line	<b>Contact Details</b>
UK	Cardiff	1 sailing weekly	Connect Logistics	Cronus Logistics	+353 1 899 1588
UK	Liverpool	1 sailing weekly		BG Freight Line	+353 1 803 8700
		2 sailings weekly	MacAndrews (Ireland) Ltd	Mac Andrews & Co. Ltd	+353 1 855 2644
UK	Southampton	1 sailing weekly	Doyle Shipping Group	X-Press CL	+353 1 819 2600
		1 sailing weekly	CMA-CGM (Ireland) Ltd	CMA-CGM	+353 1 887 7400
	Greenock	1 sailing weekly	Doyle Shipping Group	X-Press CL	+353 1 819 2600
		1 sailing weekly	CMA-CGM (Ireland) Ltd	CMA-CGM	+353 1 887 7400
UK	Felixstowe	1 sailing weekly		BG Freight Line	+353 1 803 8700

# Non-European

Country	Port	Frequency	Agent	Line	Contact Details
Egypt	Alexandria	1 sailing weekly	Jenkinson Agencies	Borchard Lines	+353 1 816 3500
Israel	Haifa	1 sailing weekly	Jenkinson Agencies	Borchard Lines	+353 1 816 3500
	Ashdod	1 sailing weekly	Jenkinson Agencies	Borchard Lines	+353 1 816 3500



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# Passenger Schedule

## **Irish Ferries**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Cruise Ferry (Passenger & Freight)	Holyhead	2	05.55	08.05	Terminal 1
<b>Tel:</b> +353 1 607 5700			17.25	20.55	
Fast Ferry (Passengers)	Holyhead	2	13.40	14.30	Terminal 1
<b>Tel:</b> +353 818 300 400			19.15	08.45*	
Epsilon (Passenger & Freight)	Holyhead	2 (Monday	11.20	14.15	Terminal 1
<b>Tel:</b> +353 1 607 5700		to Friday)	23.15	01.55*	
<b>Epsilon</b> (Passenger & Freight) <b>Tel:</b> +353 1 607 5700	Cherbourg	1 (Saturday to Monday)	11.00	15.30	Terminal 1

## **Stena Line**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Stena Superfast X (Passenger & Freight) Tel: +353 1 907 5555	Holyhead	2	12.10 23.45	02.15 15.10	Terminal 2
Stena Adventurer (Passenger & Freight) Tel: +353 1 907 5555		2	05.45 17.05	08.20 20.40	

## **P&O Ferries**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Cruise Ferry (Passenger & Freight)	Liverpool	3	05.15	09.15	Terminal 3
<b>Tel:</b> +353 1 407 3434			10.30	15.00	
			17.30	21.30	

## **Isle of Man Steam Packet Company**

Ferry	Port	Sailings Per Day	Arrival Times Dublin	Departure Times Dublin	Terminal
Fast Craft	Douglas		Seasonal	Seasonal	Terminal 1
<b>Tel:</b> 0044 8722 992 992**					

#### \* Next Day Sailing

Terminals 1 & 2 Ferryport, Alexandra Road, Dublin 1

Terminal 3 North Wall Extension, East Wall Road, Dublin 1

Terminal 4 Alexandra Road, Dublin 1

Terminal 5 Alexandra Road Extension, Dublin 1

Ocean Pier Branch Road North, Alexandra Road, Dublin 1

The above schedules are subject to change and should be checked with the ferry company at the time of booking.

<sup>\*\*</sup> Calls to this number are charged at 11 pence per minute, plus your telephone company's access charge.



## **Ø** DFDS COMBINES SEA AND LAND TRANSPORT

DFDS provides sea and land transport services to freight customers and passengers. To provide the best solutions for customers DFDS operates an integrated network with the widest coverage in Northern Europe.

To maximise the capacity utilisation of the network, DFDS actively seeks to expand each route's catchment area to attract more customers.

Volumes on freight routes are supported by local sales offices and own transport companies - operated by the Logistics Division - specialised in traffics with an element of sea transport.

On the passenger side, the majority of bookings are made on the internet, where the goal is to make it as easy as possible for customers to book their journeys.

## **TROUTES, SHIPS AND THE NETWORK**

DFDS' route network encompasses both pure freight routes and combined freight & passenger routes. The network's freight routes are supported by DFDS' landbased logistics services.

An important success factor for DFDS is the ability to deploy ships on each route that matches the requirements of customers with regard to capacity, time schedule, reliability and facilities onboard.

Combined freight and passenger ships typically have a freight capacity of 1,500 -3,000 lane metres, and room for 600-1,200 passengers.

Passenger ships typically carry 1,500-2,000 passengers, while the freight capacity is around 1,000-1,500 lane metres.

## **DFDS IRELAND**

DFDS Logistics offers first class container services between Continental Europe and Ireland using a variety of specialised equipment, Dry, Reefer, Flatrack and Curtainside Containers.

We have been serving the market since 1997, offering direct door-to-door services between Europe and Ireland. Our focus has always been on delivering the best and most reliable service in the market. This is based on a reliable sailing schedule, highly motivated and skilled staff in combination with our landside operation based on trucks, railway connections (Italy) and barges (Netherlands and Germany).

Today we are proud to serve our clients and the market with the widest range of Irish and Continental ports, with Dublin and Rotterdam as our cornerstones. Also serving Waterford, Cork, Belfast and Ballina (Inland).

This allows us to offer reliable and fast intermodal door-to-door transit times to our clients whether shipping to or from Ireland.

DFDS Logistics offer an excellent door-to-door container service from Spain to Ireland, in partnership with Vapores Suardiaz Norte S.L.

Our line is served by 4 container vessels each sailing from Bilbao to UK and Dublin on a weekly basis. DFDS Logistics provide a full door-to-door service with fast transit times and a wide range of equipment types including 40'/45' PW containers. 45' PW Reefer containers and 20'/40' Flat rack units.

## **New Address:**

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Phone: +353 1 8129470

# **Dublin (North Wall)**

#### **JANUARY 2016**

		Ti	de at North	Wall, Dub	lin	Sı	un				Ti	de at North	Wall, Dub	lin	Sı	ın	
Da	ate	High	Water	Low	Water	AM	РМ	Moon's	D	ate	High	Water	Low	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Fri	1	04:08 16:25	3.49 3.66	09:45 22:23	1.40 1.19	08:40	16:16		Sat	16	03:54 16:13	3.83 4.04	09:32 22:09	1.02 0.84	08:32	16:37	First Quarter 23:26
Sat	2	05:06 17:25	3.39 3.51	10:42 23:18	1.55 1.34	08:40	16:17	Last Quarter 05:30	Sun	17	04:56 17:15 06:06	3.73 3.90 3.66	10:36 23:14 11:48	1.16 1.00 1.26	08:31	16:38	
Sun	3	06:10 18:31	3.34 3.42	11:45	1.65	08:39	16:18		Mon	18	18:24 07:21	3.78 3.66	00:27	1.13	08:29	16:40	
Mon	4	07:12 19:34	3.38	00:18 12:48	1.43	08:39	16:19		Tues	19	19:40 08:30	3.73 3.75	13:02 01:41	1.28	08:27	16:42	
Tues	5	08:09 20:31	3.47 3.45	01:21 13:51	1.44	08:39	16:20		Wed	20	20:51 09:32	3.75 3.88	14:13 02:48	1.19 1.09	08:26	16:44	
Wed	6	09:00 21:22	3.61 3.55	02:18 14:45	1.36	08:38	16:22		Fri	22	21:55 10:27	3.81 4.01	15:16 03:43	1.03 0.98	08:25	16:45	
Thur	7	09:44 22:06 10:22	3.76 3.66 3.90	03:05 15:28 03:44	1.24 1.26 1.09	08:38	16:23		Sat	23	22:49 11:14 23:34	3.88 4.10 3.90	16:09 04:30 16:54	0.84 0.87 0.69	08:24	16:47 16:49	
Fri	8	22:45 10:57	3.78 4.02	16:05 04:19	1.07	08:37 08:37	16:24		Sun	24	11:54	4.14	05:09 17:36	0.69 0.79 0.60	08:22	16:51	Full Moon 01:46
Sat	9	23:21	3.88	16:39 04:54	0.87	08:36	16:26	New Moon	Mon	25	00:11 12:27	3.89 4.14	05:46 18:14	0.76 0.57	08:21	16:53	011.10
Sun	10	23:58	3.96	17:16 05:30	0.70	08:36	16:27	01:31	Tues	26	00:42 12:59	3.85 4.11	06:21 18:51	0.77 0.59	08:19	16:55	
Mon	11	12:11 00:38	4.22 4.01	17:55 06:10	0.57 0.67	08:35	16:29		Wed	27	01:16 13:34	3.80 4.05	06:56 19:29	0.81 0.66	08:18	16:57	
Tues	12	12:52 01:21	4.27	18:38 06:53	0.50	08:34	16:30		Thur	28	01:54 14:12	3.74 3.96	07:33 20:07	0.89	08:17	16:58	
Wed	13	13:38 02:09	4.28	19:24 07:41	0.50 0.76	08:33	16:32		Fri	29	02:33 14:52	3.66 3.83	08:13 20:48	1.01 0.92	08:15	17:00	
Thur	14	14:26 03:00	4.24 3.93	20:15 08:34	0.56 0.88		16:33		Sat	30	03:15 15:35	3.56 3.68	08:57 21:32	1.17	08:14	17:02	
Fri	15	15:18	4.16	21:09	0.68	08:32	16:35		Sun	31	04:01 16:23	3.45 3.50	09:45 22:21	1.34 1.28	08:12	17:04	

All times are given in Local Time

All times are given in Local Time

#### **FEBRUARY 2016**

		Ti	de at North	Wall, Dub	lin	Sı	ın				Ti	de at North	Wall, Dub	lin	Sı	ın	
Da	ıte	High	Water	Low '	Water	AM	PM	Moon's	Da	te	High	Water	Low	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H : M	Phases
Mon	1	04:56 17:21	3.32 3.33	10:45 23:20	1.51 1.44	08:10	17:06	Last Quarter 03:28	Tues	16	05:38 18:08	3.59 3.63	11:22 23:58	1.17 1.25	07:42	17:36	
Tues	2	06:06 18:37	3.25 3.23	11:52	1.62	08:09	17:08		Wed	17	06:57 19:27	3.54 3.55	12:41	1.25	07:40	17:38	
Wed	3	07:18 19:49	3.27 3.25	00:25 13:00	1.53 1.61	08:07	17:10		Thur	18	08:11 20:42	3.60 3.56	01:21 14:00	1.33 1.19	07:38	17:40	
Thur	4	08:19 20:49	3.40 3.37	01:30 14:03	1.50 1.48	08:05	17:12		Fri	19	09:18 21:49	3.74 3.65	02:36 15:06	1.25	07:36	17:41	
Fri	5	09:11 21:39	3.58 3.54	02:30 14:56	1.35 1.25	08:03	17:14		Sat	20	10:15 22:42	3.88 3.73	03:33 15:57	1.10	07:34	17:43	
Sat	6	09:54 22:22	3.78 3.72	03:17 15:39	1.13 0.98	08:02	17:16		Sun	21	11:03	3.98	04:18	0.94	07:32	17:45	
Sun	7	10:34 23:01	3.98 3.89	03:57 16:18	0.90 0.70	08:00	17:18		Mon	22	23:24 11:42	3.77 4.03	16:41 04:55	0.69	07:30		Full Moon
Mon	8	11:12 23:39	4.15 4.02	04:34 16:57	0.68 0.46	07:58	17:20	New Moon 14:39	Tues	23	23:57	3.77	17:18 05:30	0.59 0.74	07:27	17:47	18:20
Tues	9	11:51	4.28	05:12 17:36	0.50 0.29	07:56	17:22		Wed	24	12:11 00:21	4.02 3.76	17:54 06:02	0.56 0.70	07:25	17:49	
Wed	10	00:18 12:32	4.10 4.36	05:51 18:18	0.40 0.21	07:54	17:24				12:37 00:48	4.00 3.76	18:27 06:33	0.57 0.70	07:23	17:51	
Thur	11	01:00 13:16	4.12 4.37	06:34 19:03	0.39 0.23	07:52	17:26		Thur	25	13:07 01:20	3.96 3.75	18:59 07:04	0.62 0.74	07:21	17:53	
Fri	12	01:45 14:04	4.09 4.32	07:20 19:52	0.46 0.35	07:50	17:28		Fri	26	13:41 01:55	3.89 3.71	19:31 07:36	0.71 0.82	07:18	17:55	
Sat	13	02:33 14:55	4.01 4.20	08:12 20:45	0.60 0.54	07:48	17:30		Sat	27	14:18 02:33	3.80 3.65	20:04 08:12	0.82	07:16	17:57	
Sun	14	03:26 15:50	3.88 4.03	09:09 21:42	0.78 0.78	07:46	17:32		Sun	28	14:58	3.67	20:41	0.97		17:59	
Mon	15	04:26 16:53	3.72 3.82	10:12 22:45	0.99 1.04	07:44	17:34	First Quarter 07:46	Mon	29	03:15 15:42	3.54 3.50	08:54 21:23	1.10 1.16	07:14	18:01	
			All time	s are give	n in Local 1	īme						All time	s are give	n in Local T	Гime		

# **Dublin (North Wall)**

#### **MARCH 2016**

		Ti	de at North	Wall, Dub	lin	Sı	ın				Ti	de at North	Wall, Dub	olin	Sı	un	
Da	te	High	Water	Low	Water	AM	PM	Moon's	Da	ite	High	Water	Low '	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Tues	1	04:03 16:33	3.39 3.31	09:42 22:15	1.28 1.36	07:12	18:03	Last Quarter 23:11	Wed	16	05:12 17:55	3.55 3.51	11:01 23:31	1.05 1.33	06:36	18:31	
Wed	2	04:59 17:37	3.24 3.16	10:47 23:27	1.45 1.52	07:09	18:05		Thur	17	06:33 19:13	3.48 3.42	12:20	1.16	06:34	18:33	
Thur	3	06:12 19:03	3.16 3.13	12:09	1.51	07:07	18:06		Fri	18	07:49 20:30	3.52 3.45	00:57 13:42	1.43	06:31	18:34	
Fri	4	07:33 20:15	3.23 3.25	00:45 13:21	1.54 1.40	07:05	18:08		Sat	19	08:58 21:35 09:57	3.64 3.55 3.78	02:18 14:48 03:15	1.35 0.98 1.18	06:29	18:36	
Sat	5	08:35 21:12	3.43 3.46	01:54 14:23	1.39 1.15	07:02	18:10		Sun	20	22:26 10:43	3.64 3.88	15:38 03:58	0.82	06:27 06:24	18:38	
Sun	6	09:24 21:57	3.68 3.69	02:49 15:12	1.12 0.83	07:00	18:12		Mon	21	23:06 11:21	3.69 3.91	16:19 04:36	0.69	06:22	18:40	
Mon	7	10:08 22:38	3.93 3.90	03:33 15:55	0.82 0.50	06:58	18:14		Tues	23	23:35 11:50	3.70 3.90	16:56 05:09	0.61 0.74	06:19	18:42	Full Moon
Tues	8	10:49 23:17	4.15 4.06	04:13 16:35	0.54 0.23	06:55	18:16		Thur	24	23:57	3.72	17:29 05:40	0.58 0.68	06:17	18:43	12:01
Wed	9	11:30 23:56	4.31 4.16	04:52 17:16	0.31	06:53	18:18	New Moon 01:54	Fri	25	12:15 00:21 12:42	3.88 3.74 3.85	18:00 06:09 18:28	0.60 0.66 0.64	06:15	18:45 18:47	
Thur	10	12:11	4.39	05:33 17:58	0.18	06:51	18:20		Sat	26	00:50 13:14	3.76 3.81	06:36 18:56	0.68 0.71	06:12	18:49	
Fri	11	00:36 12:56	4.19 4.39	06:15 18:42	0.16	06:48	18:21		Sun	27	02:24 14:50	3.76 3.75	08:06 20:27	0.73 0.79	07:10	19:51	
Sat	12	01:21 13:44 02:08	4.15 4.31	07:01 19:30	0.23	06:46	18:23		Mon	28	03:01 15:30	3.72 3.65	08:41 21:04	0.82 0.91	07:07	19:53	
Sun	13	14:36 03:00	4.05 4.15 3.90	07:52 20:21	0.39	06:43	18:25		Tues	29	03:42 16:13	3.62 3.51	09:21 21:46	0.94 1.08	07:05	19:54	
Mon	14	15:32	3.94	08:49 21:18	0.61	06:41	18:27	F:+ O+	Wed	30	04:29 17:03	3.49 3.34	10:09 22:36	1.09	07:03	19:56	
Tues	15	04:00 16:37	3.72 3.70	09:52 22:21	0.84 1.09	06:39	18:29	First Quarter 17:03	Thur	31	05:21 18:02	3.33 3.20	11:07 23:41	1.25 1.44	07:00	19:58	Last Quarte 15:17

All times are given in Local Time

All times are given in Local Time

#### **APRIL 2016**

		Ti	de at North	Wall, Dub	lin	Sı	un				Ti	de at North	Wall, Dub	lin	Sı	ın	
Da	ıte	High	Water	Low '	Water	AM	PM	Moon's	Da	te	High	Water	Low '	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases
Fri	1	06:25 19:18	3.22 3.15	12:25	1.33	06:58	20:00		Sat	16	08:20 21:05	3.51 3.40	01:23 14:13	1.48 1.08	06:22	20:27	
Sat	2	07:43 20:37	3.23 3.25	01:03 13:44	1.49 1.24	06:55	20:02		Sun	17	09:29 22:09	3.59 3.49	02:45 15:18	1.42 0.99	06:20	20:29	
Sun	3	08:54 21:39	3.40 3.46	02:17 14:49	1.36 1.00	06:53	20:03		Mon	18	10:27 22:58	3.70 3.58	03:45 16:10	1.26 0.87	06:18	20:31	
Mon	4	09:51 22:30	3.65 3.70	03:17 15:44	1.09 0.69	06:51	20:05		Tues	19	11:15 23:36	3.78 3.65	04:31 16:52	1.09 0.77	06:16	20:32	
Tues	5	10:40 23:12	3.92 3.92	04:06 16:30	0.78 0.38	06:48	20:07		Wed	20	11:52	3.81	05:10 17:29	0.93 0.71	06:13	20:34	
Wed	6	11:24 23:54	4.14 4.09	04:50 17:13	0.48 0.14	06:46	20:09		Thur	21	00:05 12:23	3.69 3.81	05:44 18:01	0.82 0.68	06:11	20:36	
Thur	7	12:08	4.30	05:32 17:55	0.25 -0.00	06:43	20:11	New Moon 11:24	Fri	22	00:30 12:51	3.72 3.79	06:15 18:31	0.76 0.69	06:09	20:38	Full Moon 05:24
Fri	8	00:34 12:52	4.19 4.37	06:13 18:38	0.11 -0.02	06:41	20:12		Sat	23	00:55 13:18	3.76 3.77	06:45 18:59	0.74 0.72	06:07	20:40	
Sat	9	01:15 13:38	4.22 4.35	06:57 19:22	0.08	06:39	20:14		Sun	24	01:24 13:50	3.79 3.75	07:11 19:26	0.74 0.76	06:05	20:41	
Sun	10	02:00 14:27	4.18 4.24	07:45 20:09	0.16 0.29	06:36	20:16		Mon	25	01:57 14:26	3.81 3.71	07:40 19:58	0.76 0.82	06:02	20:43	
Mon	11	02:48 15:21	4.08 4.07	08:36 21:01	0.32 0.56	06:34	20:18		Tues	26	02:36 15:06	3.79 3.65	08:16 20:36	0.81 0.92	06:00	20:45	
Tues	12	03:39 16:18	3.93 3.86	09:33 21:57	0.52 0.86	06:32	20:20		Wed	27	03:18 15:51	3.72 3.55	08:59 21:21	0.88 1.04	05:58	20:47	
Wed	13	04:39 17:24	3.76 3.63	10:36 22:57	0.74 1.14	06:29	20:22		Thur	28	04:04 16:41	3.62 3.44	09:48 22:12	0.98 1.19	05:56	20:49	
Thur	14	05:50 18:37	3.59 3.46	11:42	0.94	06:27	20:23	First Quarter 03:59	Fri	29	04:56 17:37	3.50 3.33	10:46 23:14	1.08 1.33	05:54	20:50	
Fri	15	07:06 19:51	3.50 3.38	00:04 12:55	1.37 1.07	06:25	20:25		Sat	30	05:55 18:45	3.41 3.28	11:56	1.13	05:52	20:52	Last Quarter 03:29
			All time	es are give	n in Local 1	ime						All time	s are give	n in Local T	ime		

# **Dublin (North Wall)**

## **MAY 2016**

		Ti	de at North	Wall, Dub	lin	Sı	ın				Ti	de at North	Wall, Dub	lin	Sı	ın	
Da	te	High	Water	Low '	Water	AM	PM	Moon's	Da	te	High	Water	Low '	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H:M	Phases
Sun	1	07:04 19:58	3.41 3.35	00:27 13:09	1.38 1.07	05:50	20:54		Mon	16	08:48 21:27	3.56 3.44	01:56 14:39	1.48 1.07	05:23	21:20	
Mon	2	08:14 21:03	3.52 3.52	01:39 14:17	1.29 0.89	05:48	20:56		Tues	17	09:47 22:17	3.62 3.53	03:03 15:34	1.38	05:21	21:21	
Tues	3	09:16 21:59	3.72 3.73	02:43 15:15	1.08 0.65	05:46	20:58		Wed	18	10:36 22:57 11:17	3.68 3.62 3.72	03:57 16:19 04:39	1.24 0.93 1.10	05:20 05:18	21:23	
Wed	4	10:11 22:47	3.94 3.93	03:37 16:06	0.81 0.40	05:44	20:59		Thur	19	23:31	3.69 3.73	16:58 05:15	0.87	05:18	21:24	
Thur	5	11:01 23:32	4.13 4.09	04:26 16:52	0.55 0.22	05:42	21:01		Fri	20	00:02	3.75	17:32 05:48	0.84 0.92	05:17	21:26	Full Moon
Fri	6	11:49	4.26	05:12 17:37	0.34 0.12	05:40	21:03	New Moon 19:30	Sat Sun	21	12:25 00:30	3.74 3.80	18:03 06:18	0.83 0.87	05:14	21:27	21:14
Sat	7	00:15 12:36	4.18	05:57 18:21	0.21	05:38	21:05		Mon	23	12:56 01:00	3.74 3.85	18:30 06:46	0.83 0.85	05:13	21:29	
Sun	8	00:58 13:24	4.22	06:43 19:06	0.17	05:37	21:06		Tues	24	13:28 01:34	3.73 3.88	19:00 07:18	0.84	05:11	21:30	
Mon	9	01:43 14:15	4.19 4.17	07:31 19:52	0.23	05:35	21:08		Wed	25	14:05 02:13 14:46	3.73 3.88 3.70	19:34 07:57 20:15	0.86 0.82 0.92	05:10	21:33	
Tues	10	02:31 15:07	4.11	08:23 20:42	0.35 0.66	05:33	21:10		Thur	26	02:57 15:32	3.85 3.65	08:41 21:00	0.84	05:09	21:35	
Wed	11	03:23 16:04	3.99 3.82	09:19 21:36	0.51 0.91	05:31	21:11		Fri	27	03:45 16:21	3.80 3.59	09:32 21:52	0.88 1.10	05:08	21:36	
Thur	12	04:21 17:06	3.84	10:18 22:33	0.70 1.15	05:29	21:13		Sat	28	04:36 17:16	3.73 3.52	10:28 22:51	0.92 1.19	05:07	21:37	
Fri	13	05:25 18:11	3.69 3.46	11:19 23:34	0.87 1.35	05:28	21:15	First Quarter 17:02	Sun	29	05:31 18:17	3.67 3.48	11:31 23:55	0.95 1.24	05:06	21:39	Last Quarter 12:12
Sat	14	06:35 19:19	3.58	12:24	1.01	05:26	21:16		Mon	30	06:33 19:23	3.65 3.50	12:39	0.93	05:05	21:40	
Sun	15	07:44 20:26	3.54 3.37	00:42 13:33	1.47 1.08	05:24	21:18		Tues	31	07:39 20:29	3.69 3.60	01:03 13:45	1.21 0.85	05:04	21:41	

All times are given in Local Time

All times are given in Local Time

## **JUNE 2016**

		Ti	de at North	Wall, Dub	lin	Si	un				Ti	ide at North	Wall, Dub	lin	Sı	ın	
Da	ite	High	Water	Low '	Water	AM	PM	Moon's Phases	Da	te	High	Water	Low \	Water	AM	PM	Moon's Phases
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H : M	Priases
Wed	1	08:45 21:30	3.80 3.75	02:09 14:47	1.10 0.71	05:03	21:42		Thur	16	09:54 22:16	3.56 3.57	03:12 15:41	1.41 1.14	04:56	21:54	
Thur	2	09:45 22:24	3.94 3.91	03:09 15:43	0.92 0.57	05:02	21:43		Fri	17	10:41 22:57	3.61 3.68	04:03 16:24	1.29 1.07	04:55	21:55	
Fri	3	10:42 23:14	4.07 4.05	04:04 16:34	0.72 0.45	05:02	21:44		Sat	18	11:22 23:34	3.66 3.77	04:45 17:01	1.17 1.01	04:55	21:55	
Sat	4	11:34	4.16	04:56 17:22	0.54 0.38	05:01	21:45		Sun	19	12:00	3.70	05:21 17:34	1.06 0.95	04:55	21:56	
Sun	5	00:00 12:24	4.14 4.19	05:45 18:07	0.41 0.38	05:00	21:46	New Moon 03:00	Mon	20	00:06 12:33	3.85 3.74	05:52 18:05	0.97 0.89	04:56	21:56	Full Moon 11:02
Mon	6	00:45 13:13	4.19 4.16	06:32 18:51	0.35 0.45	04:59	21:47		Tues	21	00:38 13:07	3.92 3.77	06:24 18:37	0.89 0.85	04:56	21:56	
Tues	7	01:30 14:02	4.19 4.08	07:21 19:36	0.36 0.58	04:59	21:48		Wed	22	01:13 13:45	3.98 3.79	06:58 19:13	0.81 0.83	04:56	21:57	
Wed	8	02:16 14:51	4.14 3.95	08:10 20:23	0.43 0.74	04:58	21:49		Thur	23	01:53 14:26	4.01 3.80	07:38 19:54	0.76 0.84	04:56	21:57	
Thur	9	03:05 15:43	4.05 3.79	09:02 21:12	0.55 0.93	04:58	21:50		Fri	24	02:36 15:12	4.02 3.79	08:23 20:40	0.73 0.89	04:56	21:57	
Fri	10	03:57 16:37	3.93 3.63	09:56 22:06	0.69 1.12	04:57	21:51		Sat	25	03:24 16:00	4.01 3.76	09:13 21:30	0.74 0.96	04:57	21:57	
Sat	11	04:54 17:35	3.79 3.48	10:51 23:01	0.85 1.29	04:57	21:51		Sun	26	04:14 16:52	3.97 3.70	10:08 22:26	0.77 1.04	04:57	21:57	
Sun	12	05:55 18:36	3.66 3.38	11:48	1.00	04:56	21:52	First Quarter 08:10	Mon	27	05:08 17:49	3.91 3.65	11:07 23:27	0.82 1.11	04:58	21:57	Last Quarter 18:19
Mon	13	07:00 19:37	3.56 3.35	00:00 12:48	1.43 1.13	04:56	21:53		Tues	28	06:06 18:52	3.85 3.62	12:10	0.87	04:58	21:56	
Tues	14	08:03 20:36	3.51 3.38	01:03 13:49	1.50 1.19	04:56	21:53		Wed	29	07:11 20:00	3.81 3.64	00:32 13:16	1.16 0.89	04:59	21:56	
Wed	15	09:01 21:29	3.52 3.47	02:09 14:49	1.49 1.19	04:56	21:54		Thur	30	08:19 21:06	3.81 3.72	01:39 14:21	1.15 0.88	04:59	21:56	
					n in Local T	īme								n in Local 1	ime		

# **Dublin (North Wall)**

## **JULY 2016**

		Ti	de at North	Wall, Dub	lin	Sı	ın				Ti	ide at North	Wall, Dub	lin	Sı	un	
Da	te	High	Water	Low	Water	AM	PM	Moon's	Da	te	High	Water	Low '	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Fri	1	09:27 22:06	3.87 3.85	02:46 15:24	1.06 0.82	05:01	21:55		Sat	16	10:07 22:25	3.49 3.63	03:22 15:48	1.44 1.26	05:16	21:43	
Sat	2	10:29 23:01	3.95 3.98	03:49 16:21	0.91 0.73	05:01	21:55		Sun	17	10:54 23:06	3.58 3.77	04:12 16:31	1.29	05:18	21:42	
Sun	3	11:26 23:51	4.02 4.09	04:45 17:12	0.75 0.66	05:02	21:55		Mon	18	11:35 23:42	3.68 3.89	04:53 17:08 05:27	1.12 1.01 0.95	05:19	21:41	Full Moon
Mon	4	12:17	4.05	05:36 17:57	0.60 0.62	05:03	21:54	New Moon 11:01	Tues	19	12:12 00:16	3.77 4.01	17:42 06:01	0.88 0.79	05:20 05:22	21:40	22:57
Tues	5	00:36 13:03	4.16 4.04	06:24 18:39	0.50 0.63	05:04	21:53		Wed	20	12:47 00:51	3.84 4.10	18:15 06:37	0.77 0.66	05:23	21:39	
Wed	6	01:17 13:47	4.17 3.97	07:09 19:20	0.47	05:05	21:53		Thur	21	13:24 01:30	3.90 4.17	18:52 07:17	0.70 0.57	05:25	21:37	
Thur	7	01:58 14:30	4.15 3.88	07:54 20:02	0.50	05:06	21:52		Sat	23	14:04 02:13	3.93 4.20	19:33 08:01	0.67	05:26	21:36	
Fri	8	02:41 15:14 03:26	4.08 3.77 3.98	08:40 20:45 09:27	0.58 0.90 0.70	05:07	21:51		Sun	24	14:48 03:00 15:36	3.94 4.19 3.91	20:18 08:50 21:06	0.70 0.56 0.78	05:28	21:33	
Sat	9	16:00 04:14	3.64 3.85	21:33 10:17	1.04 0.85	05:08 05:09	21:50		Mon	25	03:49 16:26	4.14 3.84	09:43 22:00	0.63 0.89	05:29	21:31	
Sun	10	16:49 05:06	3.52 3.70	22:24 11:08	1.20	05:10	21:50		Tues	26	04:42 17:21	4.05 3.75	10:41 23:00	0.75 1.02	05:31	21:30	Last Quarter 23:00
Mon		17:43 06:06	3.41 3.55	23:18	1.35	05:10	21:49	First Quarter	Wed	27	05:40 18:24	3.92 3.66	11:42	0.89	05:32	21:28	
Tues	12	18:43 07:11	3.33 3.44	12:01 00:16	1.18 1.48	05:13	21:48	00:52	Thur	28	06:47 19:35	3.80 3.62	00:05 12:50	1.14	05:34	21:27	
Wed	13	19:45 08:15	3.32	12:57 01:18	1.30	05:14	21:47		Fri	29	08:03 20:48 09:16	3.73 3.67 3.74	01:17 14:00 02:31	1.21 1.09 1.18	05:36	21:25	
	14	20:44	3.38 3.42	13:57 02:22	1.36 1.54	05:15	21:46		Sat	30	21:54 10:24	3.74 3.79 3.81	15:10 03:40	1.07 1.05	05:37	21:23	
Fri	15	21:38	3.49	14:57	1.34	UD: 15	21:45		Sun	31	22:53	3.93	16:11	0.98	05:39	21:21	

All times are given in Local Time

All times are given in Local Time

## **AUGUST 2016**

		Ti	ide at North	Wall, Dub	lin	Sı	ın				Ti	de at North	Wall, Dub	lin	Sı	un	
Da	te	High	Water	Low	Water	AM	PM	Moon's	Da	te	High	Water	Low '	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases
Mon	1	11:22 23:44	3.88 4.05	04:39 17:03	0.86 0.87	05:40	21:20		Tues	16	11:12 23:17	3.68 3.92	04:26 16:43	1.08 1.01	06:06	20:50	
Tues	2	12:12	3.93	05:30 17:47	0.69 0.78	05:42	21:18	New Moon 20:45	Wed	17	11:49 23:53	3.82 4.09	05:03 17:18	0.83 0.81	06:08	20:48	
Wed	3	00:27 12:54	4.12 3.92	06:14 18:26	0.57 0.73	05:44	21:16		Thur	18	12:24	3.94	05:39 17:54	0.60	06:09	20:46	Full Moon 09:27
Thur	4	01:03 13:30	4.14 3.88	06:55 19:03	0.52 0.72	05:45	21:14		Fri	19	00:29 13:01	4.23 4.03	06:15 18:31	0.42	06:11	20:43	
Fri	5	01:37 14:04	4.12 3.82	07:34 19:39	0.53 0.76	05:47	21:12		Sat	20	01:07 13:40 01:49	4.32 4.08 4.35	06:55 19:11 07:38	0.32 0.46 0.31	06:13	20:41	
Sat	6	02:12 14:41	4.07 3.76	08:14 20:16	0.60 0.83	05:49	21:10		Sun	21	14:23 02:34	4.07 4.32	19:54 08:25	0.50 0.39	06:15	20:39	
Sun	7	02:51 15:20	3.99 3.68	08:54 20:57	0.71 0.94	05:51	21:08		Mon	22	15:09 03:24	4.03 4.23	20:42 09:17	0.60 0.55	06:16 06:18	20:37	
Mon	8	03:33	3.87 3.59	09:37 21:42	0.86	05:52	21:06		Tues	23	15:59 04:18	3.93 4.08	21:36 10:14	0.76 0.75	06:20	20:35	
Tues	9	04:18 16:48	3.72 3.49	10:24 22:31	1.03	05:54	21:05		Wed	24	16:54 05:18	3.81	22:36 11:17	0.96 0.98	06:22	20:32	Last Quarter
Wed	10	05:07 17:40	3.54 3.37	11:13 23:28	1.21	05:56	21:02	First Quarter 18:21	Thur	25	17:58 06:30	3.68 3.70	23:45	1.14	06:23	20:30	03:41
Thur	11	06:09 18:45	3.37 3.29	12:09	1.38	05:57	21:01	10.21	Fri Sat	26 27	19:15 07:54	3.60 3.61	12:27 01:00	1.18 1.25	06:25	20:28	
Fri	12	07:26 19:57	3.26 3.29	00:31 13:09	1.56	05:59	20:58		Sun	28	20:33 09:11	3.63 3.62	13:43 02:21	1.29 1.23	06:27	20:25	
Sat	13	08:36 21:00	3.27 3.39	01:37 14:13	1.60	06:01	20:56		Mon	29	21:43 10:20	3.76 3.71	14:59 03:33	1.27 1.08	06:28	20:23	
Sun	14	09:37	3.36	02:43	1.52	06:02	20:54		Tues	30	22:44 11:17	3.91 3.81	16:01 04:31	1.14 0.88	06:30	20:21	
Mon	15	21:54 10:28	3.55 3.52	15:13 03:42	1.40	06:04			Wed	31	23:34	4.04	16:51 05:18	0.99	06:32	20:18	
		22:39	3.74 All time	16:03 s are giver	1.22 n in Local T	īme	20:52				12:04	3.86 All time	17:33 s are give	0.87 n in Local T	ime	20:16	

# **Dublin (North Wall)**

## **SEPTEMBER 2016**

		Ti	de at North	Wall, Dub	lin	Sı	ın				Ti	de at North	Wall, Dub	lin	Sı	un	
Da	ite	High	Water	Low	Water	AM	PM	Moon's Phases	Da	ate	High	Water	Low '	Water	AM	PM	Moon's Phases
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H : M	Phases
Thur	1	00:15 12:42	4.10 3.86	05:59 18:09	0.59 0.78	05:34	20:14	New Moon 09:03	Fri	16	12:01	4.05	05:15 17:32	0.41 0.51	06:00	19:37	Full Moon 19:05
Fri	2	00:48 13:10	4.11 3.84	06:36 18:43	0.54 0.74	05:35	20:11		Sat	17	00:05 12:37	4.33 4.16	05:54 18:09	0.22 0.36	06:01	19:35	
Sat	3	01:15 13:37	4.08 3.81	07:10 19:15	0.56 0.74	05:37	20:09		Sun	18	00:44 13:16	4.43 4.21	06:33 18:50	0.13 0.30	06:03	19:33	
Sun	4	01:45 14:09	4.04 3.79	07:44 19:48	0.63 0.79	05:39	20:07		Mon	19	01:26 13:58	4.45 4.20	07:15 19:33	0.17 0.34	06:05	19:30	
Mon	5	02:20 14:44	3.97 3.76	08:18 20:24	0.73 0.87	05:41	20:04		Tues	20	02:12 14:44	4.39 4.13	08:01 20:21	0.32 0.48	06:07	19:28	
Tues	6	02:58 15:22	3.87 3.70	08:55 21:01	0.86 1.00	05:42	20:02		Wed	21	03:02 15:35	4.25 4.02	08:52 21:17	0.55 0.68	06:08	19:25	
Wed	7	03:39 16:03	3.73 3.60	09:34 21:43	1.03 1.17	05:44	19:59		Thur	22	03:57 16:31	4.05 3.87	09:50 22:19	0.82 0.91	06:10	19:23	
Thur	8	04:24 16:50	3.56 3.48	10:20 22:33	1.22	05:46	19:57		Fri	23	05:02 17:37	3.82 3.72	10:54 23:28	1.10 1.11	06:12	19:20	Last Quarter 09:56
Fri	9	05:17 17:45	3.36 3.34	11:15 23:40	1.42 1.53	05:47	19:55	First Quarter 11:49	Sat	24	06:21 18:57	3.62	12:04	1.33	06:13	19:18	
Sat	10	06:27 18:57	3.20 3.26	12:24	1.57	05:49	19:52		Sun	25	07:44 20:15	3.53 3.65	00:45 13:24	1.24	06:15	19:16	
Sun	11	07:57 20:17	3.17 3.31	00:55 13:33	1.60 1.61	05:51	19:50		Mon	26	09:01 21:26	3.57 3.76	02:08 14:43	1.22	06:17	19:13	
Mon	12	09:06 21:18	3.28 3.48	02:06 14:39	1.52	05:53	19:47		Tues	27	10:09 22:27	3.68 3.91	03:20 15:45	1.07	06:19	19:11	
Tues	13	10:02 22:08	3.48 3.70	03:09 15:34	1.30	05:54	19:45		Wed	28	11:04 23:18	3.79 4.02	04:15 16:33	0.88	06:21	19:08	
Wed	14	10:47 22:50	3.70 3.94	03:58 16:17	1.00	05:56	19:42		Thur	29	11:48 23:58	3.85 4.07	05:00 17:13	0.73 0.95	06:22	19:06	
Thur	15	11:25 23:28	3.89 4.16	04:38 16:55	0.69 0.74	05:58	19:40		Fri	30	12:23	3.86	05:38 17:49	0.64 0.85	06:24	19:04	

All times are given in Local Time

All times are given in Local Time

#### **OCTOBER 2016**

		Ti	de at North	Wall, Dub	lin	Si	ın				Ti	de at North	Wall, Dub	lin	Sı	ın	
Da	ıte	High	Water	Low '	Water	AM	PM	Moon's Phases	Da	te	High	Water	Low '	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H : M	Phases
Sat	1	00:29 12:48	4.06 3.85	06:12 18:22	0.61 0.79	07:26	19:01	New Moon 00:11	Sun	16	12:15	4.27	05:32 17:49	0.16 0.32	07:53	18:26	Full Moon 04:23
Sun	2	00:54 13:12	4.03 3.85	06:45 18:53	0.63 0.78	07:28	18:59		Mon	17	00:24 12:54	4.47 4.32	06:12 18:31	0.10 0.25	07:55	18:24	
Mon	3	01:22 13:41	3.99 3.86	07:15 19:24	0.70 0.81	07:29	18:56		Tues	18	01:07 13:37	4.48 4.31	06:55 19:16	0.17	07:57	18:21	
Tues	4	01:54 14:14	3.93 3.85	07:45 19:54	0.79 0.87	07:31	18:54		Wed	19	01:54 14:24	4.39 4.23	07:41 20:06	0.36	07:58	18:19	
Wed	5	02:30 14:51	3.85 3.81	08:16 20:29	0.90 0.98	07:33	18:52		Thur	20	02:46 15:15	4.23 4.11	08:31 21:02	0.62	08:00	18:17	
Thur	6	03:09 15:31	3.73 3.72	08:51 21:09	1.05 1.11	07:35	18:49		Fri	21	03:44 16:12 04:51	4.01 3.96 3.78	09:28 22:04 10:31	0.92 0.85 1.20	08:02	18:15	Last Quarter
Fri	7	03:54 16:15	3.58 3.60	09:34 21:54	1.23	07:36	18:47		Sat	22	17:20 06:08	3.81 3.60	23:11	1.05	08:04 08:06	18:13	19:14
Sat	8	04:44 17:06	3.40 3.46	10:26 22:53	1.43	07:38	18:44		Sun	23	18:35 07:25	3.71 3.53	00:24	1.18	08:08	18:11	
Sun	9	05:45 18:08	3.24	11:34	1.60	07:40	18:42	First Quarter 04:33	Mon	24	19:49 08:40	3.70 3.57	12:57 01:44	1.55	08:10	18:08	
Mon	10	07:09 19:24	3.18	00:11 12:53	1.53 1.66	07:42	18:40	04.00	Tues	25	21:00 09:46	3.77 3.67	14:15 02:54	1.52	08:12	18:06	
Tues	11	08:30 20:36	3.29 3.47	01:28 14:03	1.46	07:44	18:37		Wed	26 27	22:01 10:40	3.87 3.78	15:19 03:50	1.39 0.96	08:14	18:04	
Wed	12	09:29 21:32	3.50 3.70	02:33 15:00	1.24	07:46	18:35		Fri	28	22:52 11:23	3.96 3.85	16:09 04:35	1.22 0.84	08:15	18:02	
Thur	13	10:17	3.74	03:27	0.93	07:47	18:33		Sat	29	23:33 11:57	3.99 3.89	16:51 05:13	1.07 0.77	08:17	18:00	
Fri	14	22:18 10:58	3.96 3.96	15:48 04:11	1.03 0.61	07:49	18:31		Sun	30	23:59 11:24	3.99 3.91	17:27 04:48	0.96 0.75	08:19	17:58	New Moon
Sat	15	23:01 11:36	4.20 4.14	16:30 04:51	0.74	07:51	18:28		Mon	31	23:34 11:49	3.96 3.92	17:01 05:19 17:33	0.90 0.77 0.88	08:21	16:56 16:54	17:38
		23:42	4.38 All time	17:09 es are giver	0.49 n in Local T	īme	10.20					All time		0.88 n in Local T	ime	10.04	

# **Dublin (North Wall)**

## **NOVEMBER 2016**

		Ti	de at North	Wall, Dub	lin	Sı	ın				Ti	de at North	Wall, Dub	lin	Sı	ın	
Da	te	High	Water	Low \	Vater	AM	PM	Moon's	Da	te	High	Water	Low \	Vater	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Tues	1	00:02 12:17	3.93 3.93	05:48 18:03	0.82 0.90	07:23	16:52		Wed	16	12:21	4.37	05:39 18:04	0.31 0.33	07:51	16:27	
Wed	2	00:33 12:48	3.89 3.93	06:16 18:32	0.89 0.94	07:25	16:50		Thur	17	00:43 13:09	4.34 4.32	06:24 18:54	0.47 0.42	07:53	16:25	
Thur	3	01:07 13:24	3.83 3.91	06:45 19:05	0.97 1.00	07:27	16:48		Fri	18	01:36 14:00	4.19 4.21	07:14 19:49	0.70 0.58	07:55	16:24	
Fri	4	01:47 14:05	3.74 3.84	07:21 19:44	1.09	07:29	16:46		Sat	19	02:33 14:57	4.00 4.08	08:09 20:48	0.96	07:57	16:22	
Sat	5	02:30 14:50	3.63 3.74	08:03 20:30	1.23	07:31	16:45		Sun	20	03:36 15:59	3.79 3.93	09:08 21:49	1.22 0.95	07:59	16:21	
Sun	6	03:20 15:39	3.50 3.62	08:53 21:24	1.40	07:33	16:43	F: . 0 .	Mon	21	04:45 17:06	3.63 3.81	10:11 22:55	1.43	08:00	16:20	Last Quarter 08:33
Mon	7	04:17 16:35 05:26	3.38 3.52 3.32	09:54 22:30 11:08	1.55	07:34	16:41	First Quarter 19:51	Tues	22	05:55 18:15	3.54 3.74	11:20	1.57	08:02	16:19	
Tues	8	17:39 06:42	3.32 3.49 3.37	23:45	1.62 1.33	07:36	16:39		Wed	23	07:04 19:21 08:09	3.54 3.73 3.61	00:06 12:34 01:18	1.60 1.19	08:04	16:18	
Wed	9	18:48 07:48	3.57 3.55	12:21 00:54	1.55 1.17	07:38	16:38		Thur	24	20:24 09:03	3.77 3.71	13:44 02:17	1.52	08:05	16:16	
Thur	10	19:50 08:42	3.74 3.77	13:23 01:52	1.36 0.92	07:40 07:42	16:36		Fri	25	21:18 09:48	3.82 3.80	14:39 03:06	1.38	08:07	16:15	
Fri	11	20:45 09:28	3.96 3.99	14:16 02:43	1.10	07:44	16:34		Sat	26	22:02 10:24	3.85 3.88	15:26 03:47	1.24	08:10	16:14	
Sat	12	21:34 10:12	4.18 4.18	15:04 03:29	0.82 0.43	07:44	16:33		Sun	27	22:39 10:57	3.87 3.93	16:05 04:23	1.13	08:12	16:13	
Sun	13	22:21 10:54	4.34 4.31	15:48 04:12	0.43 0.58 0.28	07:48	16:31	Full Moon	Mon	28	23:13 11:27	3.86 3.97	16:40 04:55	1.05	08:13	16:12	Now Moon
Mon	14	23:07	4.42	16:33	0.40		16:29	Full Moon 13:52	Tues	29	23:44	3.85	17:13	1.01		16:12	New Moon 12:18
Tues	15	11:37 23:54	4.37 4.42	04:55 17:18	0.24 0.32	07:49	16:28		Wed	30	11:57	3.99	05:24 17:43	0.94 0.99	08:15	16:11	

All times are given in Local Time

All times are given in Local Time

#### **DECEMBER 2016**

		Ti	de at North	Wall, Dub	olin	St	un				Ti	de at North	Wall, Dub	lin	St	ın	
Da	te	High	Water	Low	Water	AM	PM	Moon's	Da	te	High	Water	Low '	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases
Thur	1	00:15 12:27	3.83 4.00	05:52 18:12	0.97 0.99	08:17	16:10		Fri	16	00:34 12:57	4.24 4.35	06:12 18:44	0.57 0.41	08:34	16:06	
Fri	2	00:48 13:03	3.81 3.99	06:22 18:45	1.01 0.99	08:18	16:09		Sat	17	01:24 13:45	4.13 4.27	06:58 19:34	0.73 0.52	08:35	16:06	
Sat	3	01:27 13:43	3.77 3.96	06:57 19:24	1.08 1.01	08:19	16:09		Sun	18	02:16 14:36	3.97 4.15	07:48 20:27	0.92	08:36	16:07	
Sun	4	02:10 14:27	3.72 3.90	07:39 20:09	1.17 1.04	08:21	16:08		Mon	19	03:12 15:31 04:11	3.80 4.01 3.64	08:41 21:22 09:38	1.13 0.85 1.33	08:36	16:07	
Mon	5	02:57 15:15	3.64 3.82	08:27 20:59	1.28 1.09	08:22	16:08		Tues	20	16:30 05:13	3.86 3.52	22:19 10:38	1.03	08:37 08:37	16:07	Last Quarter
Tues	6	03:51 16:06	3.56 3.75	09:23 21:57	1.39 1.14	08:23	16:07		Wed	21	17:33 06:17	3.72 3.47	23:20	1.20	08:38	16:08	01:56
Wed	7	04:49 17:03	3.50 3.70	10:26 23:02	1.46 1.15	08:25	16:07	First Quarter 09:03	Thur	22	18:36 07:18	3.63 3.49	00:26	1.30	08:38	16:08	
Thur	8	05:55 18:06	3.51 3.71	11:35	1.46	08:26	16:07		Fri Sat	23	19:38 08:15	3.59 3.56	12:54 01:33	1.61 1.32	08:39	16:09	
Fri	9	07:03 19:10	3.60 3.79	00:11 12:42	1.10 1.37	08:27	16:06		Sun	25	20:36 09:06	3.61 3.67	14:02 02:32	1.53 1.27	08:39	16:10	
Sat	10	08:05 20:12	3.76 3.92	01:16 13:44	0.97 1.19	08:28	16:06		Mon	26	21:27 09:50	3.65 3.78	14:57 03:18	1.41 1.20	08:39	16:10	
Sun	11	09:00 21:11	3.94 4.07	02:15 14:40	0.80 0.96	08:29	16:06		Tues	27	22:12 10:29	3.70 3.88	15:42 03:57	1.28	08:40	16:11 16:12	
Mon	12	09:51 22:05	4.12 4.20	03:09 15:32	0.64 0.74	08:31	16:06		Wed	28	22:50 11:04 23:25	3.74 3.95 3.77	16:19 04:31 16:53	1.17 1.06 1.08	08:40	16:13	
Tues	13	10:39 22:57	4.26 4.28	03:57 16:21	0.51 0.55	08:31	16:06		Thur	29	11:36 23:57	4.00 3.80	05:02 17:23	1.01	08:40	16:14	New Moon 06:53
Wed	14	11:24 23:45	4.35 4.30	04:43 17:08	0.45 0.42	08:32	16:06	Full Moon 00:06	Fri	30	12:06	4.03	05:30 17:52	0.97 0.93	08:40	16:14	00.00
Thur	15	12:10	4.38	05:27 17:56	0.48	08:33	16:06		Sat	31	00:30 12:42	3.82 4.06	06:01 18:25	0.95 0.87	08:40	16:16	
			All time	s are give	n in Local 1	Time						All time	s are give	n in Local 1	Time		

# **Soldiers Point (Dundalk)**

## **JANUARY 2016**

			Tide at I	Dundalk		Sı	un					Tide at I	Dundalk		Sı	ın	
Da	ate	High	Water	Low '	Water	AM	РМ	Moon's	Di	ate	High	Water	Low	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Fri	1	03:59 16:16	4.31 4.54	09:56 22:29	1.47 1.22	08:44	16:13		Sat	16	03:45 16:04	4.75 5.03	09:44 22:16	1.00 0.77	08:35	16:34	First Quarter 23:26
Sat	2	04:57 17:16	4.19 4.35	10:46 23:19	1.66 1.40	08:44	16:14	Last Quarter 05:30	Sun	17	04:47 17:06 05:57	4.62 4.84 4.53	10:40 23:15 11:48	1.17 0.98 1.30	08:34	16:36	
Sun	3	06:01 18:22	4.13 4.22	11:45	1.78	08:43	16:15		Mon		18:15 07:12	4.69 4.54	00:28	1.14	08:33 08:32	16:38	
Mon	4	07:03 19:25	4.17 4.20	00:18 12:51	1.52	08:43	16:16		Tues	19	19:31 08:21	4.62 4.65	13:07 01:52	1.33	08:31	16:39	
Tues	5	08:00 20:22	4.30 4.27	01:29 14:05	1.53	08:43	16:17		Wed	20	20:42 09:23	4.65 4.82	14:32 03:15	1.22 1.09	08:30	16:41	
Wed	6	08:51 21:13 09:35	4.47 4.39 4.66	02:38 15:11 03:36	1.43 1.53 1.27	08:42	16:19		Fri	22	21:46 10:18	4.73 4.98	15:49 04:21	1.01 0.94	08:28	16:43 16:45	
Thur	7	21:57 10:13	4.54 4.84	16:03 04:22	1.30	08:42	16:20		Sat	23	22:40 11:05 23:25	4.81 5.10 4.84	16:51 05:14 17:39	0.78 0.81 0.59	08:27	16:45	
Fri	8	22:36 10:48	4.69 5.00	16:46 05:02	1.06	08:41	16:22		Sun	24	11:45	5.16	05:54 18:20	0.72 0.47	08:26	16:49	Full Moon 01:46
Sat	9	23:12	4.82 5.15	17:23 05:39	0.82	08:40	16:23	New Moon	Mon	25	00:02 12:18	4.83 5.15	06:30 18:56	0.67 0.43	08:24	16:51	
Sun	10	23:49	4.93	18:01 06:14	0.60	08:40	16:24	01:31	Tues	26	00:33 12:50	4.78 5.11	07:02 19:29	0.68 0.46	08:23	16:53	
Mon -		12:02 00:29	5.26 4.99	18:38 06:52	0.43 0.56	08:39	16:26		Wed	27	01:07 13:25	4.72 5.03	07:33 20:01	0.74	08:21	16:54	
Tues	12	12:43 01:12	5.32 5.00	19:17 07:30	0.35 0.58	08:38	16:28		Thur	28	01:45 14:03 02:24	4.64 4.92 4.54	08:05 20:33 08:38	0.84 0.69 0.99	08:20	16:56	
Wed	13	13:29 02:00	5.33 4.96	19:57 08:12	0.34 0.67	08:37	16:29		Fri	29	14:43 03:06	4.76 4.41	21:07 09:15	0.87 1.18	08:18 08:17	16:58	
Thur		14:17 02:51	5.28 4.88	20:40 08:56	0.42 0.82	08:36	16:31		Sat	30	15:26 03:52	4.56 4.26	21:44 09:56	1.09	08:17	17:00	
Fri	15	15:09	5.18	21:25	0.57	30.30	16:32		Sun	31	16:14	4.33	22:27	1.32	00.10	17:02	

All times are given in Local Time

All times are given in Local Time

#### **FEBRUARY 2016**

			Tide at I	Dundalk		Sı	ın					Tide at I	Dundalk		Sı	ın	
Da	ite	High	Water	Low '	Water	AM	PM	Moon's Phases	Da	te	High	Water	Low \	Water	AM	PM	Moon's Phases
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H : M	Phases
Mon	1	04:47 17:12	4.10 4.11	10:48 23:21	1.61 1.53	08:13	17:04	Last Quarter 03:28	Tues	16	05:29 17:59	4.44 4.50	11:23 23:58	1.18 1.29	07:44	17:35	
Tues	2	05:57 18:28	4.00 3.98	11:52	1.75	08:12	17:06		Wed	17	06:48 19:18	4.38 4.39	12:43	1.29	07:42	17:37	
Wed	3	07:09 19:40	4.04 4.01	00:26 13:04	1.64 1.74	08:10	17:08		Thur	18	08:02 20:33	4.46 4.41	01:29 14:16	1.38 1.21	07:40	17:39	
Thur	4	08:10 20:40	4.19 4.16	01:39 14:19	1.60 1.58	08:08	17:10		Fri	19	09:09 21:40	4.63 4.52	03:00 15:37	1.29	07:38	17:41	
Fri	5	09:02 21:30	4.43 4.38	02:53 15:25	1.41 1.29	08:06	17:12		Sat	20	10:06 22:33	4.82	04:09 16:37	1.10	07:36	17:43	
Sat	6	09:45 22:13	4.69 4.61	03:50 16:16	1.14 0.95	08:04	17:14		Sun	21	10:54 23:15	4.95	05:01	0.91	07:34	17:45	
Sun	7	10:25 22:52	4.94 4.83	04:37 17:01	0.85 0.60	08:03	17:16		Mon	22	11:33	4.67 5.01	17:26 05:40	0.58 0.75	07:31		Full Moon
Mon	8	11:03 23:30	5.17 4.99	05:18 17:42	0.57 0.30	08:01	17:18	New Moon 14:39	Tues	23	23:48	4.67	18:03 06:14	0.47 0.64	07:29	17:47	18:20
Tues	9	11:42	5.33	05:57 18:20	0.36 0.08	07:59	17:20		Wed	24	12:02 00:12	5.00 4.66	18:37 06:45	0.42 0.59	07:27	17:49	
Wed	10	00:09 12:23	5.10 5.43	06:34 18:59	0.23 -0.01	07:57	17:22				12:28 00:39	4.97 4.66	19:07 07:13	0.44	07:25	17:51	
Thur	11	00:51 13:07	5.13 5.45	07:14 19:39	0.21 0.02	07:55	17:24		Thur	25	12:58 01:11	4.91 4.64	19:36 07:40	0.50 0.65	07:22	17:52	
Fri	12	01:36 13:55	5.09 5.38	07:54 20:21	0.30 0.16	07:53	17:26		Fri	26	13:32 01:46	4.83 4.60	20:03 08:07	0.61 0.75	07:20	17:55	
Sat	13	02:24 14:46	4.98 5.23	08:38 21:05	0.47 0.40	07:51	17:28		Sat	27	14:09	4.71	20:31	0.76		17:56	
Sun	14	03:17 15:41	4.81 5.00	09:25 21:53	0.71 0.70	07:49	17:31		Sun	28	02:24 14:49	4.52 4.54	08:38 21:02	0.90 0.94	07:18	17:58	
Mon	15	04:17 16:44	4.61 4.74	10:19 22:48	0.96 1.02	07:47	17:32	First Quarter 07:46	Mon	29	03:06 15:33	4.38 4.33	09:12 21:37	1.10 1.17	07:15	18:00	
			All time	es are giver	n in Local T	īme						All time	s are giver	n in Local T	Time		

# **Soldiers Point (Dundalk)**

#### **MARCH 2016**

			Tide at I	Dundalk		Sı	un					Tide at I	Dundalk		Sı	ın	
Da	te	High	Water	Low	Water	AM	PM	Moon's	Da	te	High	Water	Low	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Tues	1	03:54 16:24	4.19 4.09	09:53 22:22	1.33 1.42	07:13	18:02	Last Quarter 23:11	Wed	16	05:03 17:46	4.40 4.34	11:03 23:32	1.04 1.39	06:37	18:31	
Wed	2	04:50 17:28	4.00 3.89	10:50 23:28	1.54 1.62	07:11	18:04		Thur	17	06:24 19:04	4.30 4.23	12:20	1.18	06:34	18:33	
Thur	3	06:03 18:54	3.90 3.85	12:09	1.61	07:08	18:06		Fri	18	07:40 20:21	4.35 4.27	01:01 13:54	1.52	06:32	18:35	
Fri	4	07:24 20:06	3.99 4.01	00:47 13:29	1.64 1.48	07:06	18:08		Sat	19	08:49 21:26 09:48	4.51 4.39 4.69	02:38 15:15 03:48	1.41 0.95 1.19	06:30	18:37	
Sat	5	08:26 21:03	4.24 4.28	02:08 14:44	1.46 1.16	07:04	18:10		Sun	20	22:17 10:34	4.51 4.81	16:15 04:38	0.75 0.97	06:27 06:25	18:39	
Sun	6	09:15 21:48	4.56 4.58	03:16 15:44	1.13 0.76	07:01	18:12			21	22:57 11:12	4.57 4.86	17:02 05:20	0.59 0.78	06:22	18:40	
Mon	7	09:59 22:29	4.88 4.85	04:09 16:35	0.75 0.35	06:59	18:14		Tues	22	23:26 11:41	4.59 4.85	17:41 05:54	0.49 0.65	06:20	18:42	Full Moon
Tues	8	10:40 23:08	5.16 5.05	04:55 17:19	0.40 0.02	06:56	18:16		Thur		23:48	4.61	18:13 06:24	0.46 0.57	06:17	18:44	12:01
Wed	9	11:21 23:47	5.37 5.18	05:37 18:01	0.12 -0.20	06:54	18:18	New Moon 01:54	Fri	25	12:06 00:12	4.82 4.64	18:43 06:51	0.47	06:15	18:46 18:48	
Thur	10	12:02	5.47	06:17 18:41	-0.05 -0.26	06:52	18:20		Sat	26	12:33 00:41 13:05	4.78 4.67 4.73	19:08 07:15 19:33	0.53 0.58 0.61	06:12	18:50	
Fri	11	00:27 12:47	5.21 5.47	06:57 19:21	-0.08 -0.17	06:49	18:22		Sun	27	02:15 14:41	4.66 4.64	08:42 21:00	0.64 0.72	07:10	19:52	
Sat	12	01:12 13:35	5.16 5.36	07:37 20:02	0.02	06:47	18:24		Mon	28	02:52 15:21	4.61 4.52	09:12 21:31	0.75 0.87	07:07	19:54	
Sun	13	01:59 14:27	5.03 5.17	08:21 20:45	0.22	06:44	18:26		Tues	29	03:33 16:04	4.49 4.34	09:45 22:06	0.90 1.07	07:05	19:55	
Mon	14	02:51 15:23	4.84 4.89	09:08 21:33	0.49	06:42	18:27		Wed	30	04:20 16:54	4.31 4.13	10:25 22:48	1.09 1.31	07:02	19:57	
Tues	15	03:51 16:28	4.61 4.59	10:02 22:27	0.78 1.09	06:39	18:29	First Quarter 17:03	Thur	31	05:12 17:53	4.11 3.94	11:15 23:45	1.28 1.52	07:00	19:59	Last Quarter 15:17

All times are given in Local Time

All times are given in Local Time

## **APRIL 2016**

			Tide at I	Dundalk		Sı	un					Tide at I	Dundalk		Sı	un	
Da	te	High	Water	Low	Water	AM	PM	Moon's	Da	te	High	Water	Low	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases
Fri	1	06:16 19:09	3.97 3.87	12:26	1.38	06:58	20:01		Sat	16	08:11 20:56	4.34 4.20	01:24 14:19	1.57 1.07	06:21	20:29	
Sat	2	07:34 20:28	3.99 4.00	01:03 13:46	1.58 1.28	06:55	20:03		Sun	17	09:20 22:00	4.45 4.32	02:57 15:38	1.50 0.96	06:19	20:31	
Sun	3	08:45 21:30	4.20 4.28	02:24 15:02	1.42 0.98	06:53	20:05		Mon	18	10:18 22:49	4.58 4.43	04:11 16:42	1.31 0.81	06:17	20:33	
Mon	4	09:42 22:21	4.52 4.59	03:36 16:10	1.09 0.59	06:50	20:07		Tues	19	11:06 23:27	4.68 4.52	05:07 17:32	1.08 0.68	06:15	20:35	
Tues	5	10:31 23:03	4.86 4.87	04:37 17:06	0.70 0.20	06:48	20:09		Wed	20	11:43 23:56	4.73 4.57	05:52 18:13	0.89 0.61	06:12	20:36	
Wed	6	11:15 23:45	5.16 5.09	05:29 17:55	0.33 -0.11	06:45	20:10		Thur	21	12:14	4.72	06:29 18:46	0.76 0.58	06:10	20:38	
Thur	7	11:59	5.36	06:16 18:40	0.03 -0.28	06:43	20:12	New Moon 11:24	Fri	22	00:21 12:42	4.61 4.70	07:00 19:15	0.68 0.59	06:08	20:40	Full Moon 05:24
Fri	8	00:25 12:43	5.22 5.45	06:58 19:22	-0.14 -0.30	06:40	20:14		Sat	23	00:46 13:09	4.66 4.68	07:29 19:42	0.65 0.63	06:05	20:42	
Sat	9	01:06 13:29	5.25 5.42	07:40 20:03	-0.17 -0.16	06:38	20:16		Sun	24	01:15 13:41	4.71 4.65	07:53 20:07	0.65 0.68	06:03	20:44	
Sun	10	01:51 14:18	5.20 5.29	08:23 20:44	-0.08 0.09	06:36	20:18		Mon	25	01:48 14:17	4.73 4.60	08:19 20:35	0.68 0.76	06:01	20:46	
Mon	11	02:39 15:12	5.07 5.07	09:07 21:28	0.12 0.43	06:33	20:20		Tues	26	02:27 14:57	4.70 4.52	08:50 21:07	0.73 0.87	05:59	20:48	
Tues	12	03:30 16:09	4.88 4.79	09:55 22:15	0.38 0.80	06:31	20:22		Wed	27	03:09 15:42	4.61 4.40	09:27 21:45	0.83 1.03	05:57	20:49	
Wed	13	04:30 17:15	4.66 4.50	10:48 23:06	0.65 1.15	06:29	20:23		Thur	28	03:55 16:32	4.48 4.25	10:07 22:28	0.95 1.22	05:55	20:51	
Thur	14	05:41 18:28	4.45 4.27	11:46 00:00	0.90 0.00	06:26	20:25	First Quarter 03:59	Fri	29	04:47 17:28	4.33 4.11	10:56 23:21	1.07 1.38	05:52	20:53	
Fri	15	06:57 19:42	4.33 4.17	00:06 12:55	1.44 1.06	06:24	20:27		Sat	30	05:46 18:36	4.21 4.05	11:59	1.13	05:50	20:55	Last Quarter 03:29
			All time	s are give	n in Local T	ime						All time	s are give	n in Local T	Time		

# **Soldiers Point (Dundalk)**

## **MAY 2016**

			Tide at I	Dundalk		Sı	ın					Tide at I	Dundalk		Sı	un	
Da	ite	High	Water	Low '	Water	AM	PM	Moon's	Da	te	High	Water	Low	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H:M	Phases
Sun	1	06:55 19:49	4.21 4.14	00:28 13:09	1.45 1.06	05:48	20:57		Mon	16	08:39 21:18	4.41 4.25	02:00 14:50	1.58 1.06	05:20	21:23	
Mon	2	08:05 20:54	4.35 4.36	01:41 14:24	1.34 0.84	05:46	20:59		Tues	17	09:38 22:08	4.48 4.37	03:19 15:57	1.45 0.98 1.27	05:19	21:25	
Tues	3	09:07 21:50	4.61 4.63	02:55 15:34	1.08 0.53	05:44	21:00		Wed	18	10:27 22:48 11:08	4.56 4.48 4.61	04:26 16:53 05:16	0.89 1.10	05:17 05:16	21:27	
Wed	4	10:02 22:38	4.89 4.88	04:01 16:37	0.74 0.23	05:42	21:02		Thur	19	23:22	4.57 4.63	17:38 05:58	0.82	05:14	21:28	
Thur	5	10:52 23:23	5.13 5.08	05:01 17:32	0.41 -0.00	05:40	21:04		Fri Sat	20	23:53	4.65	18:16 06:33	0.77 0.87	05:13	21:30	Full Moon
Fri	6	11:40	5.30 5.21	05:54 18:21 06:42	0.15 -0.12 -0.02	05:38	21:06	New Moon 19:30	Sun	22	12:16 00:21	4.63 4.72	18:48 07:03	0.76 0.82	05:11	21:31	21:14
Sat	7	12:27 00:49	5.36 5.25	19:06 07:27	-0.02 -0.11 -0.06	05:36 05:34	21:08		Mon	23	12:47 00:51 13:19	4.63 4.78 4.63	19:14 07:30 19:43	0.76 0.78 0.77	05:10	21:33	
Sun	8	13:15 01:34	5.32 5.21	19:48 08:11	0.03	05:33	21:09		Tues	24	01:25 13:56	4.81 4.62	07:59 20:14	0.76 0.80	05:08	21:36	
Mon	9	14:06 02:22	5.18 5.11	20:30 08:56	0.26	05:31	21:11		Wed	25	02:04 14:37	4.82 4.59	08:34 20:49	0.75 0.87	05:07	21:37	
Tues	10	14:58 03:14	4.98 4.96	21:12 09:43	0.55	05:29	21:13		Thur	26	02:48 15:23	4.78 4.53	09:12 21:28	0.78 0.98	05:06	21:39	
Wed	11	15:55 04:12	4.74 4.77	21:57 10:33	0.86	05:27	21:15		Fri	27	03:36 16:12	4.72 4.44	09:54 22:11	0.83 1.10	05:05	21:40	
Thur	12	16:57 05:16	4.48 4.58	22:45 11:25	1.16 0.81	05:25	21:16	First Quarter	Sat	28	04:27 17:07 05:22	4.63 4.35 4.55	10:41 23:01 11:36	0.88 1.21 0.91	05:04	21:42	Last Quarter
Fri	13	18:02 06:26	4.28 4.44	23:38	1.41	05:24	21:18	17:02	Sun	29	18:08 06:24	4.30 4.52	23:58	1.28	05:02	21:43	12:12
Sat	14	19:10 07:35	4.17 4.38	12:25 00:42	0.99 1.57	05:22	21:20		Mon -	30	19:14 07:30	4.33 4.58	12:39 01:03	0.89 1.24	05:00	21:44	
Sun	15	20:17	4.16	13:34	1.08	JUILE	21:22		Tues	31	20:20	4.46	13:47	0.78		21:45	

All times are given in Local Time

All times are given in Local Time

## **JUNE 2016**

			Tide at I	Dundalk		Si	un					Tide at I	Dundalk		St	un	
Da	te	High	Water	Low '	Water	AM	PM	Moon's	Da	te	High	Water	Low '	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases
Wed	1	08:36 21:21	4.72 4.65	02:15 15:00	1.10 0.62	04:59	21:47		Thur	16	09:45 22:07	4.41 4.42	03:30 16:06	1.48 1.15	04:52	21:59	
Thur	2	09:36 22:15	4.89 4.85	03:27 16:09	0.87 0.43	04:59	21:48		Fri	17	10:32 22:48	4.47 4.56	04:33 16:59	1.34 1.07	04:52	22:00	
Fri	3	10:33 23:05	5.06 5.03	04:34 17:10	0.62 0.28	04:58	21:49		Sat	18	11:13 23:25	4.54 4.68	05:23 17:42	1.19 0.98	04:52	22:00	
Sat	4	11:25 23:51	5.18 5.16	05:36 18:05	0.40 0.20	04:58	21:50		Sun	19	11:51 23:57	4.59 4.78	06:04 18:18	1.06 0.91	04:52	22:01	
Sun	5	12:15	5.22	06:30 18:52	0.24 0.20	04:57	21:51	New Moon 03:00	Mon	20	12:24	4.63	06:37 18:50	0.94 0.84	04:52	22:01	Full Moon 11:02
Mon	6	00:36 13:04	5.22 5.18	07:16 19:34	0.16 0.29	04:56	21:52		Tues	21	00:29 12:58	4.87 4.67	07:09 19:21	0.83 0.79	04:52	22:01	
Tues	7	01:21 13:53	5.21 5.07	08:02 20:15	0.17 0.45	04:56	21:53		Wed	22	01:04 13:36	4.94 4.71	07:41 19:55	0.74 0.76	04:52	22:01	
Wed	8	02:07 14:42	5.15 4.90	08:45 20:56	0.26 0.65	04:55	21:54		Thur	23	01:44 14:17	4.99 4.72	08:17 20:31	0.67 0.78	04:53	22:01	
Thur	9	02:56 15:34	5.03 4.70	09:29 21:38	0.41	04:54	21:55		Fri	24	02:27 15:03	5.00 4.70	08:56 21:11	0.64	04:53	22:01	
Fri	10	03:48 16:28	4.88 4.50	10:14 22:23	0.59	04:54	21:56		Sat	25	03:15 15:51	4.98 4.66	09:38 21:53	0.65 0.92	04:53	22:01	
Sat	11	04:45 17:26	4.70 4.31	11:01 23:09	0.79	04:53	21:56		Sun	26	04:05 16:43	4.93 4.59	10:24 22:39	0.69	04:54	22:01	
Sun	12	05:46 18:27	4.53 4.18	11:51	0.98	04:53	21:57	First Quarter 08:10	Mon	27	04:59 17:40	4.86 4.52	11:15 23:32	0.74	04:54	22:01	Last Quarter 18:19
Mon	13	06:51 19:28	4.40 4.13	00:02 12:48	1.51 1.13	04:52	21:58		Tues	28	05:57 18:43	4.78 4.48	12:12	0.81	04:55	22:01	
Tues	14	07:54 20:27	4.35 4.18	01:03 13:52	1.60	04:52	21:58		Wed	29	07:02 19:51	4.73 4.51	00:32	1.17	04:56	22:01	
Wed	15	08:52 21:20	4.36 4.29	02:15 15:02	1.59	04:52	21:59		Thur	30	08:10 20:57	4.73 4.62	01:41 14:29	1.16	04:56	22:00	
		21.20			n in Local 1	Time	21.00				20.01			n in Local 1	Гime	22.00	

# **Soldiers Point (Dundalk)**

## **JULY 2016**

			Tide at I	Dundalk		Sı	un					Tide at I	Dundalk		Sı	un	
Da	ıte	High	Water	Low	Water	AM	PM	Moon's	Da	ıte	High	Water	Low	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Fri	1	09:18 21:57	4.80 4.78	02:58 15:45	1.05 0.74	04:57	22:00		Sat	16	09:58 22:16	4.32 4.49	03:43 16:15	1.52 1.30	05:13	21:48	
Sat	2	10:20 22:52	4.90 4.95	04:16 16:55	0.87 0.64	04:58	22:00		Sun	17	10:45 22:57	4.44 4.67	04:44 17:07	1.34 1.15	05:15	21:46	
Sun	3	11:17 23:42	4.99 5.09	05:23 17:54	0.66 0.55	04:59	21:59		Mon	18	11:26 23:33	4.56 4.83	05:33 17:50	1.13 0.99	05:16	21:45	
Mon	4	12:08	5.04	06:20 18:42	0.47 0.50	04:59	21:58	New Moon 11:01	Tues	19	12:03 00:07	4.67 4.98	06:11 18:27 06:46	0.92 0.83 0.72	05:18	21:44	Full Moon 22:57
Tues	5	00:27 12:54	5.17 5.02	07:09 19:23	0.35 0.51	05:00	21:58		Wed	20	12:38 00:42	4.77 5.10	19:00 07:21	0.72 0.69 0.55	05:19 05:20	21:42	
Wed	6	01:08 13:38	5.19 4.94	07:51 20:01	0.31 0.58	05:01	21:57			21	13:15 01:21	4.84 5.19	19:35 07:58	0.60 0.43	05:22	21:41	
Thur	7	01:49 14:21	5.16 4.82	08:31 20:38	0.35 0.69	05:02	21:57		Fri Sat	22	13:55 02:04	4.89 5.23	20:13 08:37	0.57 0.39	05:24	21:40	
Fri	8	02:32 15:05	5.07 4.67	09:11 21:15	0.45 0.85	05:03	21:56		Sun	23	14:39 02:51	4.89 5.22	20:52 09:19	0.60 0.42	05:25	21:38	
Sat	9	03:17 15:51	4.94 4.51	09:50 21:55	0.60 1.03	05:05	21:55		Mon		15:27 03:40	4.85 5.15	21:33	0.69 0.51	05:27	21:37	
Sun	10	04:05 16:40	4.77 4.35	10:32 22:38	0.79 1.22	05:06	21:54		Tues	26	16:17 04:33 17:12	4.77 5.04 4.65	22:17 10:52 23:08	0.83 0.66 1.00	05:28	21:35	Last Quarter 23:00
Mon	11	04:57 17:34	4.58 4.21	11:15 23:24	1.00 1.42	05:07	21:53		Wed	27	05:31 18:15	4.87 4.54	11:46	0.83	05:30	21:32	23.00
Tues	12	05:57 18:34	4.39 4.12	12:03	1.19	05:08	21:52	First Quarter 00:52	Thur	28	06:38 19:26	4.71 4.49	00:07 12:50	1.15 1.00	05:31	21:30	
Wed	13	07:02 19:36	4.25 4.10	00:17 12:57	1.58 1.35	05:09	21:51		Fri	29	07:54 20:39	4.62 4.55	01:17 14:04	1.24	05:33	21:28	
Thur	14	08:06 20:35	4.19 4.18	01:18 14:01	1.66 1.43	05:11	21:50		Sat	30	09:07 21:45	4.64 4.70	02:40 15:28	1.20 1.06	05:35	21:27	
Fri	15	09:05 21:29	4.22 4.32	02:30 15:12	1.65 1.40	05:12	21:49		Sun	31	10:15 22:44	4.72 4.88	04:05 16:43	1.03 0.95	05:36	21:25	

All times are given in Local Time

All times are given in Local Time

## **AUGUST 2016**

			Tide at I	Dundalk		Sı	un					Tide at I	Dundalk		Sı	un	
Dat	te	High	Water	Low	Water	AM	PM	Moon's	Da	te	High	Water	Low	Water	AM	PM	Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Mon	1	11:13 23:35	4.82 5.04	05:16 17:44	0.80 0.81	05:38	21:23		Tues	16	11:03 23:08	4.56 4.87	05:01 17:21	1.08 0.99	06:04	20:53	
Tues	2	12:03	4.88	06:14 18:32	0.59 0.70	05:40	21:21	New Moon 20:45	Wed	17	11:40 23:44	4.74 5.09	05:44 18:01	0.76 0.74	06:06	20:50	
Wed	3	00:18 12:45	5.13 4.87	06:59 19:11	0.44 0.64	05:42	21:19		Thur	18	12:15	4.90	06:23 18:39	0.47 0.52	06:08	20:48	Full Moon 09:27
Thur	4	00:54 13:21	5.16 4.82	07:38 19:46	0.37 0.63	05:43	21:17		Fri	19	00:20 12:52	5.26 5.01	07:00 19:15	0.25 0.36	06:10	20:46	
Fri	5	01:28 13:55	5.13 4.75	08:14 20:18	0.39	05:45	21:15		Sat	20	00:58 13:31	5.38 5.07	07:38 19:53	0.12	06:12	20:44	
Sat	6	02:03 14:32	5.06 4.66	08:49 20:50	0.48 0.77	05:47	21:13		Sun	21	01:40 14:14	5.42 5.07	08:17 20:31	0.11	06:13	20:41	
Sun	7	02:42	4.95	09:22	0.62	05:49	21:12		Mon	22	02:25 15:00	5.38	08:58 21:12	0.22	06:15	20:39	
Mon	8	15:11 03:24	4.56 4.80	21:25 09:58	0.91	05:50			Tues	23	03:15 15:50	5.27 4.89	09:42 21:57	0.41	06:17	20:37	
Tues	9	15:54 04:09	4.45 4.61	22:02 10:38	1.09 1.01	05:52	21:09		Wed	24	04:09 16:45	5.07 4.73	10:29 22:48	0.67 0.92	06:19	20:34	
Wed	10	16:39 04:58	4.31 4.38	22:44 11:20	1.30 1.23	05:54	21:07	First Quarter	Thur	25	05:09 17:49	4.83 4.56	11:23 23:48	0.95 1.15	06:21	20:32	Last Quart 03:41
		17:31 06:00	4.17 4.16	23:33	1.52	05:56	21:05	18:21	Fri	26	06:21 19:06	4.59 4.46	12:28	1.20	06:22	20:30	
	11	18:36 07:17	4.06 4.02	12:11 00:32	1.45 1.68	05:57	21:03		Sat	27	07:45 20:24	4.46 4.50	01:00 13:45	1.29	06:24	20:27	
Fri	12	19:48 08:27	4.06 4.03	13:09 01:39	1.58 1.73	05:59	21:01		Sun	28	09:02 21:34	4.49 4.66	02:29 15:14	1.26	06:26	20:25	
Sat	13	20:51 09:28	4.18 4.15	14:19 02:55	1.60 1.62		20:59		Mon	29	10:11 22:35	4.60 4.86	03:56 16:31	1.07	06:28	20:23	
Sun	14	21:45	4.39	15:32	1.47	06:01	20:57		Tues	30	11:08 23:25	4.72 5.02	05:07 17:30	0.82	06:29	20:20	
Mon	15	10:19 22:30	4.35 4.63	04:07 16:33	1.38 1.25	06:03	20:55		Wed	31	11:55	4.79	06:01 18:17	0.60 0.81	06:31	20:18	
			All time	s are give	n in Local 1	Time						All time	s are give	n in Local 1	Time		

# **Soldiers Point (Dundalk)**

#### **SEPTEMBER 2016**

			Dundalk	Sun						Dundalk		Sun					
Da	te	High Water		Low	Water	AM PM		Moon's	D	ate	High	Water	Low Water		AM PM		Moon's Phases
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H : M	Phases
Thur	1	00:06 12:33	5.10 4.79	06:44 18:54	0.46 0.70	06:33	20:15	New Moon 09:03	Fri	16	11:52 23:56	5.04 5.39	05:58 18:16	0.24 0.37	07:00	19:38	Full Moon 19:05
Fri	2	00:39 13:01	5.11 4.76	07:20 19:27	0.41 0.65	06:35	20:13		Sat	17	12:28	5.18	06:39 18:54	-0.00 0.17	07:02	19:36	
Sat	3	01:06 13:28	5.08 4.73	07:52 19:57	0.43 0.65	06:37	20:11		Sun	18	00:35 13:07	5.52 5.24	07:17 19:33	-0.11 0.10	07:03	19:33	
Sun	4	01:36 14:00	5.02 4.70	08:23 20:26	0.51	06:38	20:08		Mon	19	01:17 13:49	5.55 5.23	07:57 20:13	-0.06 0.16	07:05	19:31	
Mon	5	02:11 14:35	4.93 4.66	08:52 20:57	0.64 0.82	06:40	20:06		Tues	20	02:03 14:35	5.47 5.14	08:37 20:55	0.12	07:07	19:28	
Tues	6	02:49 15:13 03:30	4.80 4.58 4.62	09:23 21:28 09:56	0.81 0.98 1.01	06:42	20:03		Wed	21	02:53 15:26 03:48	5.29 4.99 5.03	09:21 21:42 10:09	0.41	07:09	19:26	
Wed	7	15:54 04:15	4.46 4.40	22:03 10:34	1.18	06:44	20:01		Thur	22	16:22 04:53	4.80 4.74	22:33 11:03	0.76 0.86 1.10	07:10 07:12	19:24	Last Quarter
Thur	8	16:41 05:08	4.30 4.15	22:45 11:22	1.42	06:47	19:58	First Quarter	Fri	23	17:28 06:12	4.61 4.48	23:33	1.12	07:12	19:21	09:56
Fri	9	17:36 06:18	4.12	23:44	1.63	06:49	19:56	11:49	Sat	24	18:48 07:35	4.49 4.37	12:06 00:45	1.39 1.27	07:14	19:19	
Sat	10	18:48 07:48	4.02	12:25 00:55	1.69 1.73	06:51	19:53		Sun		20:06 08:52	4.52 4.42	13:25 02:13	1.54	07:10	19:16	
Sun	11	20:08 08:57	4.08 4.05	13:34 02:11	1.73	06:53	19:51		Mon		21:17	4.67 4.56	14:55 03:40	1.49	07:19	19:14	
Mon		21:09 09:53	4.30 4.31	14:50 03:27	1.59	06:54	19:48		Tues		22:18 10:55	4.85 4.70	16:11 04:48	1.31	07:21	19:11	
Tues		21:59 10:38	4.59 4.58	15:57 04:27	1.32	06:56	19:46		Wed		23:09 11:39	5.00 4.78	17:09 05:41	1.10	07:23	19:09	
	14	22:41 11:16	4.90 4.84	16:50 05:15	0.98	06:58	19:43			29	23:49	5.06	17:55 06:22	0.91	07:25	19:06	
Thur	15	23:19	5.18	17:35	0.65	30.30	19:41		Fri	30	12:14	4.80	18:34	0.78	01.20	19:04	

All times are given in Local Time

All times are given in Local Time

#### **OCTOBER 2016**

Date			Tide at I	Dundalk		Sun						Dundalk	Sun				
		High Water		er Low Water		AM PM		Moon's	Da	Date		Water	Low Water		AM PM		Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H:M	Phases
Sat	1	00:20 12:39	5.05 4.78	06:57 19:07	0.49 0.71	07:27	19:01	New Moon 00:11	Sun	16	12:06	5.31	06:16 18:34	-0.07 0.12	07:55	18:25	Full Moon 04:23
Sun	2	00:45 13:03	5.01 4.78	07:29 19:36	0.52 0.70	07:29	18:59		Mon	17	00:15 12:45	5.58 5.38	06:57 19:15	-0.14 0.04	07:56	18:23	
Mon	3	01:13 13:32	4.96 4.79	07:57 20:05	0.60 0.73	07:30	18:56		Tues	18	00:58 13:28	5.59 5.37	07:38 19:57	-0.06 0.09	07:58	18:21	
Tues	4	01:45 14:05	4.89 4.77	08:23 20:31	0.71 0.82	07:32	18:54		Wed	19	01:45 14:15	5.47 5.27	08:20 20:42	0.17 0.26	08:00	18:18	
Wed	5	02:21 14:42	4.78 4.72	08:50 21:01	0.85 0.95	07:34	18:52		Thur	20	02:37 15:06	5.26 5.12	09:03 21:29	0.50	08:02	18:16	
Thur	6	03:00 15:22	4.63 4.62	09:20 21:35	1.04 1.12	07:36	18:49		Fri	21	03:35 16:03	4.99 4.92	09:51 22:21	0.87	08:04	18:14	
Fri	7	03:45 16:06	4.43 4.46	09:56 22:12	1.26	07:38	18:47		Sat	22	04:42 17:11	4.69 4.73	10:44 23:18	1.23	08:06	18:12	Last Quarter 19:14
Sat	8	04:35	4.20 4.27	10:39	1.51	07:40	18:44		Sun	23	05:59 18:26 07:16	4.46 4.60 4.37	11:44	1.51	08:08	18:10	
Sun	9	16:57 05:36	4.00	23:02 11:38	1.52 1.73	07:41	18:42	First Quarter 04:33	Mon	24	19:40 08:31	4.58 4.41	00:25 12:57 01:46	1.20 1.66 1.21	08:10	18:07	
Mon	10	17:59 07:00	4.12 3.92	00:12	1.63	07:43		04.33	Tues	25	20:51 09:37	4.67 4.55	14:22	1.63	08:12 08:14	18:05	
Tues	11	19:15 08:21	4.11 4.05	12:53 01:29	1.80 1.55	07:45	18:39		Wed	26	21:52 10:31	4.81 4.69	15:39 04:17	1.46 0.92	08:16	18:03	
Wed	12	20:27 09:20	4.29 4.32	14:08 02:43	1.67 1.27	07:47	18:37		Thur	27	22:43 11:14	4.92 4.78	16:40 05:12	1.25	08:18	18:01	
Thur	13	21:23 10:08	4.59 4.63	15:16 03:49	1.38 0.89	07:49	18:35		Fri	28	23:24 11:48	4.96 4.83	17:30 05:55	1.07	08:20	17:59	
Fri		22:09 10:49	4.92 4.92	16:15 04:43	1.02 0.49	07:51	18:32		Sat	29	23:57 11:15	4.96 4.85	18:11 05:33	0.93 0.66	07:22	17:57	New Moon
	14	22:52 11:27	5.23 5.16	17:06 05:30	0.65 0.15	07:53	18:30		Sun	30	23:25 11:40	4.92 4.87	17:46 06:04	0.85	07:24	16:55	17:38
Sat	15	23:33	5.46	17:51	0.33		18:28		Mon	31	23:53	4.88	18:17	0.83	31.L-1	16:53	
			All time	s are giver	n in Local T	īme						All time	s are giver	n in Local 1	ime		



# Local knowledge INTERNATIONAL EXPERTISE

RPS is a leading planning, design, engineering, environmental and energy consultancy delivering strategic and sustainable infrastructure by planning, designing, developing and managing projects for public and private sectors.

Our specialised maritime team has significant experience in the successful delivery of large port and harbour and maritime projects in the British Isles and internationally and are well placed to provide a complete scope of service to port and energy client's throughout Ireland.

Our experience covers all facets of Port and Harbour infrastructure development, including:

- Ports Infrastructure;
- Navigation and Dredging;
- Berthing and Mooring;
- Master Planning;
- Cargo Handling;
- Planning and Environmental;
- Intergrated Transport;
- Feasibility and Economic Appraisals;
- Computational and Physical Modelling.

Our team of specialist engineers, environmental scientists and planners manage port infrastructure developments from inception to completion producing industry leading design and cost effective solutions to meet specific client needs. Technical excellence and value engineering is delivered at all stages of the project using state of the art practices and techniques.

#### **Key Contacts**

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# **Soldiers Point (Dundalk)**

## **NOVEMBER 2016**

Date		Tide at Dundalk					un				Tide at Dundalk				Sun		
		High	Water	Low Water		AM PM		Moon's	Da	Date		Water	Low Water		AM PM		Moon's
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	Sets H : M	Phases			Time H : M	Height Metres	Time H : M	Height Metres	Rises H:M	ises Sets	Phases
Tues	1	12:08	4.89	06:32 18:46	0.74 0.85	07:26	16:51		Wed	16	12:12	5.45	06:23 18:46	0.11 0.13	07:54	16:24	
Wed	2	00:24 12:39	4.82 4.89	06:57 19:12	0.83 0.90	07:27	16:49		Thur	17	00:34 13:00	5.41 5.38	07:05 19:31	0.31 0.26	07:56	16:23	
Thur	3	00:58 13:15	4.75 4.85	07:23 19:41	0.94	07:29	16:47		Fri	18	01:27 13:51	5.21 5.24	07:49 20:18	0.60 0.45	07:58	16:21	
Fri	4	01:38 13:56	4.64 4.77	07:55 20:14	1.08	07:31	16:45		Sat	19	02:24 14:48	4.97 5.07	08:35 21:07	0.93	08:00	16:20	
Sat	5	02:21 14:41	4.50 4.64	08:30 20:53	1.27	07:33	16:43		Sun	20	03:27 15:50	4.71 4.88	09:24 21:59	1.25 0.91	08:02	16:19	
Sun	6	03:11 15:30 04:08	4.33 4.49 4.17	09:12 21:38 10:03	1.47 1.35 1.66	07:35	16:41	F:+ O+	Mon	21	04:36 16:57 05:46	4.49 4.72 4.38	10:18 22:58 11:21	1.52 1.11 1.69	08:04	16:17	Last Quarter 08:33
Mon	7	16:26 05:17	4.36 4.09	22:35 11:10	1.43 1.75	07:37	16:39	First Quarter 19:51	Tues	22	18:06 06:55	4.63 4.38	00:06	1.09	08:05	16:16	
Tues	8	17:30 06:33	4.32 4.17	23:45	1.75	07:39	16:38		Wed	23	19:12 08:00	4.62 4.47	12:35 01:25	1.72 1.21	08:07	16:15	
Wed	9	18:39 07:39	4.42 4.39	12:22 00:58	1.67 1.19	07:41	16:36		Thur	24	20:15 08:54	4.67 4.60	13:56 02:36	1.62	08:09	16:14	
Thur	10	19:41 08:33	4.64 4.67	13:31 02:06	1.43	07:45	16:34		Fri	25	21:09 09:39	4.74 4.72	15:04 03:37	1.45	08:12	16:13	
Fri	11	20:36 09:19	4.93 4.96	14:35 03:09	1.10	07:45	16:32		Sat	26	21:53 10:15	4.78 4.81	16:01 04:26	1.28	08:14	16:12	
Sat	12	21:25 10:03	5.20 5.20	15:34 04:05	0.76 0.26	07:47	16:31		Sun	27	22:30 10:48	4.80 4.88	16:46 05:06	1.13	08:16	16:11	
Sun	13	22:12 10:45	5.41 5.37	16:27 04:54	0.45 0.08		16:29	Full Mana	Mon	28	23:04	4.80 4.93	17:25 05:40	1.04		16:10	Name Manage
Mon	14	22:58	5.52	17:17	0.23	07:51	16:27	Full Moon 13:52	Tues	29	23:35	4.78	17:58	0.98	08:17	16:09	New Moon 12:18
Tues	15	11:28 23:45	5.45 5.52	05:40 18:03	0.02 0.12	07:53	16:26		Wed	30	11:48	4.96	06:09 18:27	0.91 0.96	08:19	16:08	

All times are given in Local Time

All times are given in Local Time

#### **DECEMBER 2016**

			Dundalk	Sun						Dundalk	Sun						
Da	Date		Water	Low '	Water	AM PM		Moon's Phases	Date		High Water		Low Water		AM PM		Moon's Phases
		Time H : M	Height Metres	Time H : M	Height Metres	Rises H: M	Sets H : M	Phases				Height Metres	Time H : M	Height Metres	Rises Sets H:M H:M	Phases	
Thur	1	00:06 12:18	4.76 4.97	06:35 18:54	0.94 0.96	08:20	16:07		Fri	16	00:25 12:48	5.28 5.42	06:54 19:23	0.44 0.24	08:38	16:03	
Fri	2	00:39 12:54	4.73 4.96	07:03 19:23	0.99 0.96	08:22	16:07		Sat	17	01:15 13:36	5.13 5.32	07:35 20:06	0.64 0.37	08:39	16:03	
Sat	3	01:18 13:34	4.68 4.91	07:34 19:57	1.07 0.98	08:23	16:06		Sun	18	02:07 14:27	4.94 5.17	08:17 20:50	0.88	08:40	16:03	
Sun	4	02:01 14:18	4.61 4.84	08:10 20:35	1.18 1.03	08:25	16:05		Mon	19	03:03 15:22	4.72 4.98	09:02 21:36	1.14 0.78	08:41	16:04	
Mon	5	02:48 15:06	4.51 4.75	08:50 21:17	1.32 1.09	08:26	16:05		Tues	20	04:02 16:21 05:04	4.51 4.79 4.35	09:50 22:25 10:42	1.39 1.01 1.59	08:41	16:04	Last Quarter
Tues	6	03:42 15:57	4.41 4.65	09:37 22:06	1.46 1.15	08:28	16:04		Wed	21	17:24 06:08	4.61 4.28	23:21 11:43	1.22	08:42	16:04	01:56
Wed	7	04:40 16:54	4.33 4.59	10:31 23:04	1.55 1.17	08:29	16:04	First Quarter 09:03	Thur	22	18:27 07:09	4.49 4.31	00:27	1.35	08:42 08:43	16:05	
Thur	8	05:46 17:57	4.34 4.60	11:35	1.55	08:30	16:03		Fri	23	19:29 08:06	4.45 4.41	12:58 01:43	1.74	08:44	16:06	
Fri	9	06:54 19:01	4.46 4.70	00:11 12:44	1.10 1.43	08:31	16:03		Sat	24	20:27 08:57	4.47 4.55	14:18 02:55	1.64	08:44	16:06	
Sat	10	07:56 20:03	4.66 4.87	01:23 13:56	0.94	08:33	16:03		Sun	25 26	21:18 09:41	4.52 4.69	15:26 03:51	1.49 1.22	08:44	16:07	
Sun	11	08:51 21:02	4.90 5.06	02:34 15:05	0.73	08:34	16:03		Tues	26	22:03 10:20	4.58 4.81	16:20 04:37	1.33 1.13	08:44	16:08	
Mon	12	09:42 21:56	5.13 5.23	03:40 16:08	0.52 0.64	08:35	16:03		Wed	28	22:41 10:55	4.64 4.90	17:02 05:15	1.19 1.05	08:44	16:09	
Tues	13	10:30 22:48	5.31 5.34	04:37 17:04	0.36 0.41	08:36	16:03		Thur	29	23:16 11:27	4.68 4.97	17:38 05:47	1.07 0.99	08:44	16:09 16:10	New Moon
Wed	14	11:15 23:36	5.42 5.35	05:28 17:53	0.29	08:37	16:03	Full Moon 00:06	Fri	30	23:48 11:57	4.71 5.01	18:08 06:14 18:35	0.97 0.94 0.89	08:44	16:11	06:53
Thur	15	12:01	5.46	06:12 18:39	0.32	08:38	16:03	00.00	Sat	31	00:21 12:33	4.74 5.04	06:44 19:06	0.89 0.81	08:44	16:12	
		All times are given in Local Time										All time	s are giver	n in Local T	Гime		





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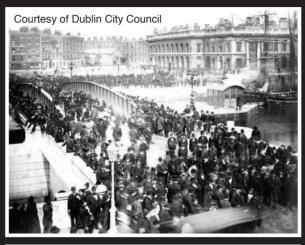
- everything you ever wanted to know about Dublin's bridges

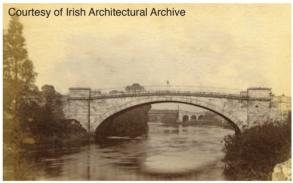
Have you ever wondered how many bridges cross the River Liffey or which one is the oldest? Well, wonder no more, answers to these questions and many more can be found on Dublin City Council's new website: www.bridgesofdublin.ie.

Bridges of Dublin was designed to showcase Dublin's unique bridge infrastructure. The site provides a range of information running to over 90,000 words covering the history, design, engineering and interesting facts for each of the current 23 bridges. A spectacular digital archive contains more than 900 photos from the historic to the modern, some of which have never been seen on public display. Sources include the Dublin City Library & Archive, National Gallery, National Library of Ireland, Dublin Port, Fáilte Ireland and the Guinness Archive.

The new website provides an opportunity for all to learn about our rich bridge heritage, from the oldest, Mellows Bridge built in 1688, to the more recently constructed Rosie Hackett Bridge, opened in 2014.

The website won the Best Government and Local Government category at the recent Irish Web Awards 2013. It was the second year in a row that the Council won the publicly judged award.









- The force on the back cables of the Samuel Beckett Bridge is equivalent to a people load of over 80,000 a Croke Park full house.
- Island Bridge was originally named Sarah Bridge for Sarah Fane, Countess of Westmorland.
- The keystones on the centre arches of O'Connell Bridge represent Anna Liffey looking westwards and the Atlantic gazing eastwards towards the sea.



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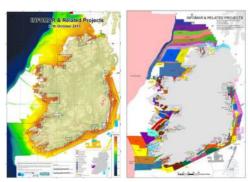
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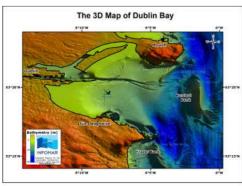












Integrated Mapping for the Sustainable Development of Ireland's Marine Resources (INFOMAR). INFOMAR is Ireland's National Marine Mapping Programme, the follow-on project to the Irish National Seabed Survey (INSS), and is a joint venture of the Geological Survey of Ireland (GSI), Dept. of Communications, Energy and Natural Resources (DCENR) and the Marine Institute (Dept. of Agriculture, Food and Marine). Mapping online at:- https://maps.marine.ie/infomar

Following a successful Memo to Government in Q4 of 2013, approval has been given to the programme for continued funding for the period (2014 – 2018) at c.€3m per annum, to be met from within the DCENR Department's agreed multi-annual capital envelope.

This project is currently scheduled to run for a twenty-year period (2006-2026) with priority in the first ten years being given to mapping 26 Bays and 3 Marine Areas. (see http://www.infomar.ie for more info)



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Cold Move is a leading provider of road transport and distribution services across Ireland. Due to the unique nature of our geographic coverage of our facilities and scale, we deliver road transport and haulage solutions from single ad-hoc deliveries to complex multi drop solutions nationwide.

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Operating five full service regional distribution centres, Cold Move provide distribution services to a broad range of Ireland's leading retailers, manufacturers and brand owners. Our management systems provide visibility of all orders and transport movements, allowing us to provide the most cost effective, efficient and sustainable transport planning infrastructure.

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With economies of scale and customer relationships we create a unique opportunity to deliver true collaboration across manufacturer to retailer supply chain. This includes sharing capacity on delivery routes, combining customers to maximise back-haul opportunities and operating a fully integrated distribution process on behalf of multiple customers. The collaborative approach of Cold Move creates a significant reduction in overhead and operating costs when benchmarked against dedicated operations, whilst ensuring a flexible and adaptive supply chain.

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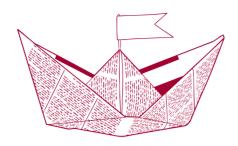


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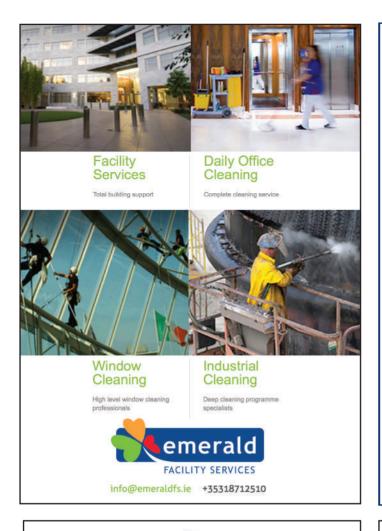
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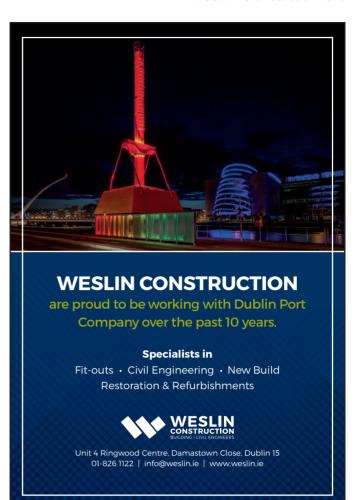
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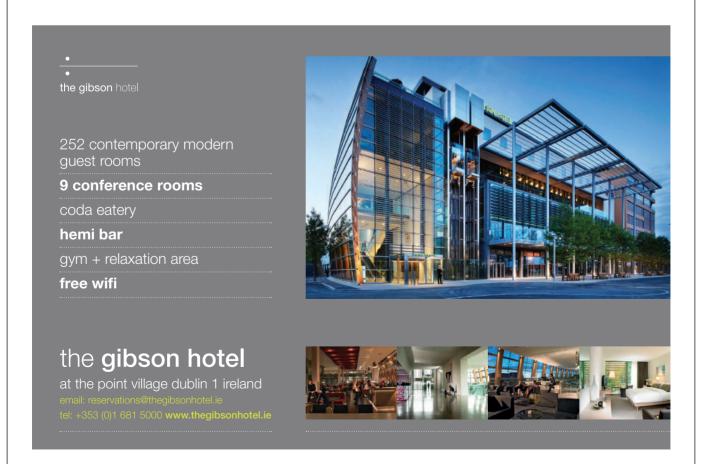
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