Loodswezen

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The next generation • **The darkside of the sun** • Green and innovative **Navigating the Western Scheldt** Pride of Holland • **History of pilotage**

Colophon

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Dear reader,

This year, it once again is with great pleasure that I write the foreword to this special edition of our magazine. An edition with a nice mix of topics which I believe is highly worth your while. I therefore hope that you will enjoy reading it and express my appreciation to all those who contributed to helping this publication see the light of day.

Seeing the light - or not - nicely brings me to the other topics in this foreword.

To start with, a subject which is still clearly shrouded in darkness: the intention of Euro Commissioner Kallas to - for the third time already - incorporate the profession of pilots' in a European Services Directive. Based on all the arguments which were exchanged in the past and which have not lost their validity, I am assuming that three rejections will ultimately prove enough. Yet it remains important to time and again clearly notify the public at large of the importance of our profession. We are not just there for the shipping line, the port, the environment, the cargo handling agent or for safety reasons. No, in the bigger picture we are there for all the stakeholders to independently play our part in ensuring that the shipping traffic to and from our ports is handled safely and smoothly. An issue that also requires some light in order to come to a good resolution involves taking the right measures to overcome the current crises. It is quite worrying that we see a drop in the activity levels in our ports. Our collective and prolonged overspending will need to be corrected no matter what and be transformed into a responsible balance between revenues and expenditures. In addition to a lot of energy, this will also cost us a lot of money. Concern is justifiable here. However, I am convinced that negativity is not the answer here: positively setting our shoulders to the wheel while showing solidarity with each other is the only way to start embarking on the road to recovery again.

ISPO worldwide

It gives me great pleasure to be able to announce in this foreword that this year, numerous pilot organisations have once again spoken out in favour of the ISPO. The number of pilot organisations associated with this system is steadily growing and spreading across more and more continents. Despite misunderstandings and opposition from certain parties, there is and should be nothing against the objective, demonstrable presence of quality within an organisation. I conclude by wishing you an merry Christmas, a Happy New Year and all the best for 2012.

Eric M. van Dijk, President

Dutch Pilots' Organisation spreads the word:

pilotage smoothly combines maritime with social life

Dutch Pilots' Organisation chairman Eric van Dijk is in no doubt: "when attracting new recruit, we have to cooperate with other maritime stakeholders to bring the message across that it is worthwhile to pursue a maritime career. In former days we recruited haphazardly. Today it needs a more structural and various approach of the labour market to attract new workers. As it is, we are all fishing in the same - sparsely populated - proverbial pond here."

IN the old days it was not particularly hard to find youngsters in pursuit of a maritime career, but not anymore. The Dutch Pilots' Organisation and other stakeholders in the maritime industry have found that. The organisation's chairman Eric van Dijk observed a growing need for a labour market communication scheme two-and-a-half years ago, but it took some time to develop such a scheme together with other stakeholders of the industry. "It is a fact that there are more maritime employers in search for new recruit within a relatively small labour market", he told Navigator.NL. "As a rule seafarers who abandon life at sea after a couple of years, disappear from focus the moment they take up a certain job ashore. Our go-to people would be those who opt out of life at sea in favour of leading a more social life, although there still are students who deliberately go to sea to become a maritime pilot whenever possible."

Those active in the maritime industry have to admit that they had not thought that the industry was in danger to lose its attraction to youngsters. They thought that old fashioned advertisements in special interest papers would suffice and that new staff would join forces just like that. Today, there is a growing awareness that various campaigns at primary and secondary schools, colleges and universities are needed to recruit efficiently and effectively. Social media such as You Tube, Facebook and Twitter have become indispensible labour market communication tools.

There is more to it to achieve the required result", explains Dutch Pilots'Organisation sales & marketing manager Tjeerd van der Voorn. "That is why we campaign and do mailings to various stakeholders in the maritime industry - including the organisation of partners of seafarers with the suggestion 'wouldn't it be nice to have your seafaring husband at home more regularly - starting with presentations in secondary schools to enthuse pupils to apply for a maritime pilot job. Our organisation does this together with the Royal Association of Shipowners KVNR, but we also cooperate with others."

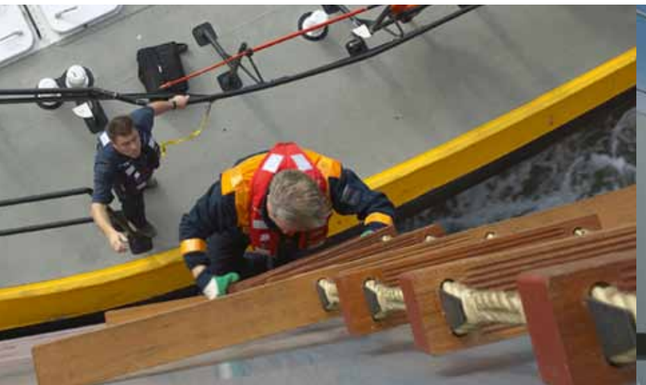
Van der Voorn added that drawing up a strategic plan as to how to recruit initially had a high level of abstraction. It called for almost tangible targets. Branding of the name of Nederlands Loodswezen (Dutch Pilots' Organisation) is aimed to become in the top ranking list of maritime organisations and the website www.werkenbijhetloodswezen.nl is to become onde of the tools to do the trick. The moment the website is online, the organisation will press on at www.twitter.com and www.facebook.com

"We wager for finding the proverbial egg of Columbus to become an incentive to apply for a job at our organisation. It was found in the legal arrangement that officers can become pilot after some two years of practice at the merchant fleet, and additional pilotage training. It must be understood that we want to uphold our standard of highly trained pilots."

The bottom line of the story is that the organisation may well invest in state-of-the-art equipment, but it is the people with which the proper income is earned. "We believe in the practical strength and expertise of people, which is not gained through theoretical studies sitting at a desk", Van der Voorn concluded.

Labour market communication appears to be an expertise in itself. There are several publishers of manuals offering their solutions on how to recruit efficiently and effectively. One of them is the International Recruitment Manual, a study that aims to give companies and their recruiters practical information to assist them in determining their strategy for the international labour market.

The labour market approach to attract foreign workers is quite different from that of recruiting maritime pilots, but there is one resemblance: it is rather hard to achieve effective result. Experts on labour market communication say that it is becoming increasingly difficult to get the right man or woman in the right position. "An ageing population on the one hand and the call for the flexible allocation of experts on the other, make the right kind of communication towards your target group a highly relevant theme", they say when advocating to monitor the familiarity and preference a particular business enjoy, as well as the image it has with its target group. "A sound labour market policy should not be an isolated entity, but needs to be integrated with an effective internal HR policy", they say when promoting their expertise to help out.



The next generation

After more than 30 years of loyal service, Loodswezen will replace the current pilot station vessels off the coast of Flushing and Rotterdam by new ones. For shipbuilding yard Barkmeijer in the Northern Netherlands, the construction constitutes a unique order. In August 2012, the first of three purpose-designed ships will be delivered.

Day in day out, the pilot station vessels lay at their posts off the Dutch coast. Both at the Steenbank near Flushing and in Rotterdam's Maasmond approach area, they function as transfer points from where pilots are taken to and from incoming and outgoing vessels. Aboard the station vessels, the pilots await their new assignments; a dedicated crew ensure that everything aboard the ships runs smoothly. The three station vessels (two continuously in operation, one on standby) by now however are more than 30 years old. Although reliability is still not an issue whatsoever, it is time for them to be replaced. After all, shipping traffic must also be able to count on the best possible pilotage services in the future. Using the most modern technology, the new vessels can be optimally geared to this task. An anti-rolling system for example makes them more stable and diesel-electric generators mean cleaner propulsion. Moreover, giving them a specific design allows for the new station vessels to be used in higher wave heights. "Our current vessels need to seize operations and head back to port in waves of approximately 2.5 metres high," says Arno Metzemakers, Manager Fleet and Logistics with Loodswezen and, in this capacity, responsible for the new building programme. "The new vessels can however continue to operate in waves of up to 3.5 metres. And that means increased port access for shipping traffic. We have calculated that the difference amounts to eleven days of additional pilotage a year. As Loodswezen, we can thus improve our services and reduce our reliance on remote pilotage or expensive pilotage by helicopter."

> **"The new vessels can continue to operate in waves of up to 3.5 metres"**

'True craftsmanship'

Through a tender, shipyard Barkmeijer in the northern Netherlands won the contract for the construction of the three new pilot station vessels. In September 2010, the contracts were signed. The planning is that the first ship (Polaris) will be delivered in August 2012; the second ship will be delivered one year later (Pollux) followed by the third one (Procyon) one year after that. "True craftsmanship," says Jan Compaan while inspecting the welding on one of the sections of the second vessel in the hall of the shipyard in Stroobos. Compaan is one of the four members of the expert site team which on behalf of Loodswezen supervises the work on a daily basis until the delivery of the third vessel in 2014. According to him, the construction of the ships is a complex task. "They have an unusual design, with an entirely unique shape. Every square meter of the vessels has been utilised. The slim, tapered design in addition makes welding a great challenge. For the welders, it is quite a puzzle to properly reach everything. There are pretty much no flat areas; everything has curves." The unique design furthermore also makes the construction a journey of discovery, especially as regards the first vessel. After all, the yard has no frames of reference to fall back on. Louis Susanna, manager of the site team: "Paper and practice definitely do not always go hand in hand. In such cases, the yard offers suggestions for adjustment. We assess these. What we have here is in fact a living design."

Smooth process

In mid November 2011, the first ship was launched at the shipyard in Stroobos and taken to Harlingen. There, the construction will be completed. Susanna: "To make a transverse launch possible, a dredging vessel especially deepened the Prinses Margrietkanaal near the shipyard." In Stroobos, a start has now been made with moving the sections of the second ship, which were pre-fabricated in the hall, outside. They will be welded together at the slipway there. Meanwhile, the keel laying of the third vessel has already been planned for March 2012. The entire process at the yard is extremely smooth anyway, says Susanna. To this extent the shipyard, which has more than 160 years of history, works closely together with suppliers from across the entire Northern Netherlands. "This starts with the on-demand delivery of customised steel. In the hall, you can next see complete sections emerge from the steel. These are next moved outside, and so on and so forth."

Optimal reliability

"With the new pilot station vessels, we as Loodswezen are taking a step into the future," concludes Metzemakers. "Both in relation to the labour and living conditions on board and performance in general. Everything the market has to offer in terms of new technologies is incorporated into the ships." What's more, to ensure an optimum reliability all critical systems are fully redundant, always having one or two backups. "Failure of the vessels is not an option, as this would mean that ports would grind to a halt. And that is the last thing that we as pilots would want."

The new pilot station vessels

Length	81.20 m
Width	13.30 m
Draught	4.80 m
Fuel capacity	250 m³
Potable water capacity	200 m³
Design speed	16 knots
Accommodation	18 pilots, 17 crew members + 10 extra berths
Installed power	5200 kW (6 generator sets)
Propulsion Power	2 x 1700 kW (two electric motors)

EMPA members prove being market driven:

‘Pilot regulations reflect The needs of shipownersers’

The mind boggled on hearing some of the questions asked during EMPA’s round table conference - themed ‘The future of pilotage in Europe’ - in Amsterdam. The attendees however were quick to respond to ‘Do pilot regulations reflect the need of the ship owners?’ “Pilotage should not be constrained by business management”, “The safety ensuing from having a pilot onboard is in the interest of the shipowner”, and “The ship’s master is a customer of the pilot, who should render services accordingly,” were just a few of the many remarks and responses it yielded. Ultimately, a convincing 67% percent of delegates answered yes to this challenging question.

ALTHOUGH the 45th EMPA (European Maritime Pilots Association) general meeting is long gone, several items discussed are still topical. Delegates of political parties, shipowners, ship agents, port authorities and other stakeholders agreed that the role of maritime pilots will not be obsolete for a long time to come. Under SOLAS and IMO regulations, they are described as being independent navigation consultants who work with the bridge team.

The pilots’ added value is their knowledge of local fairways in the port and beyond and their willingness to optimally assist the bridge team, thus ensuring safety. However, 97% of all delegates attending the round table conference titled ‘The future of pilotage in Europe’ emphatically said ‘yes’ to the question ‘does pilotage offer room for improvement?’.

The conference organisation - a ‘joint venture’ of EMPA and the Dutch Pilots’ Organisation Nederlands Loodswezen - definitely followed through on its promise to deliver challenging theses and questions for the panel discussion. Take the following questions, for example:

- Should pilots be mariners? (83% of those present said yes)
- Is there a problem with fatigue in the pilotage sector? (63% said yes)
- The role of the pilot: is the pilot is a team player in the supply chain? (86% said yes)
- Will technology make pilots redundant? (68% said no)

Much to the surprise of Nederlands Loodswezen chairman Eric van Dijk and marketing manager Tjeerd van der Voorn and co-workers, the round table conference brought about a vivid discussion among panellists and delegates on such items as transparency in the rendering of services, quality management, fatigue, e-navigation, legislation and communication.
Senior management representatives Piet Hoogerwaard of Vopak Agencies Rotterdam, Fred van Wijnen of the Confederation of European Ship Masters Association, Mark Williams of the International Group of P&I Clubs, Harbour Master of the Port of Rotterdam Authority René de Vries, Marnix van Overklift of the European Community Shipowners Association and of the Royal Association of Dutch Shipowners KVNR and Bernard Teheux of Stolt Tankers all shared their views on these items. In summing up the remarks made, moderator Victor De Coninck concluded that the market-driven pilot is here to stay, that the profession is on the threshold of new technology and that the big question is where to recruit pilots in the next ten years to come.

Time will tell. In the meantime, Van der Voorn is content. “We aimed to present a firm and triggering program,” he told Navigator.NL. “And we succeeded. Right from the start, there was plenty of interaction between delegates and keynote speakers. It even was possible to discuss the ISPO-Code (International Standard for Pilot Organisations). In our opinion, it is all about self examination and finding an answer to the question ‘in what way can we improve ourselves?’. That is better than adopting an attitude of ‘nobody understands our business’ and ‘we know it all’.

Van Dijk observes that maritime pilots in the 25 EMPA member states may differ, but not in the way they can do things together. “We have common interests and common goals. The discussions about the theses were proof of that. To me it confirmed that those present want openness and transparency. We should all cherish that kind of feeling and challenge others to act likewise for the benefit of all stakeholders.”

The dark side of the sun:

solar flares may disturb navigation systems

Earlier this year, the public at large was disturbed by the news that severe solar storms could likely disrupt modern life on Earth with all its electronic devices, global positioning systems and the like. There is even mainstream scientific concern about the potential devastation of the solar storms which are expected in mid-2013.

Space Scientist Joseph Kunches, associated with the National Oceanic and Atmospheric Administration's Space Weather Prediction Centre, told Navigator.NL that it is accepted that eruptions from the sun - which actually comprise two parts, the flare and the CME (coronal mass ejection) - do indeed affect the accuracy and availability of GPS systems as well as interfere with the proper functioning of satellites. A GPS outage, for example, could create chaos and lead to accidents, which is why the International Civil Association Organization and other organisations aim to define procedures for those occasions when the environment is stressed.

On completing his PhD research on the effects of solar activity on the movement of satellites through the upper atmosphere at the faculty of Aerospace Engineering at the Delft University of Technology, Dr Eelco Doornbos recently concluded that it is true that extreme magnetic storms can cause all kinds of damage and disruptions. "We are talking about very severe storms here, comparable to the major floods which for example hit parts of the Netherlands in the fifties (and, more recently, Thailand)," he told this magazine, adding that GPS and satellite systems are prepared for more common 'regular' solar flares and storms.

"In that sense, space weather is just like the weather here on the ground. Perhaps people react more emotionally to it because it's extraterrestrial and therefore has something mystical about it," he said. He further explained: "The charged particles - mainly protons and electrons - that head towards Earth are mostly fended off by the Earth's magnetosphere. When hit by great quantities, this barrier however is reduced and more particles can enter the atmosphere near the poles. At an altitude of several hundreds of kilometres, they collide with oxygen and nitrogen molecules and atoms, causing these to ionize - to break apart. The resulting heat causes the upper atmosphere to expand, increasing the drag on satellites."

Having said all this, he stresses that he believes the chance of a big solar storm ravaging the Earth in the next couple of years is rather slim: "Since solar activity was so low these last few years, most solar physicists expect the maximum activity, which is expected in 2013, to be relatively low as well. It will probably not surpass the activity we saw in 2003."

Space scientist Kunches commented on Doornbos' views by saying that the latter's arguments are basically accurate. "Although quantities of charged particles do not break down any barrier near the poles. The net effect however is the same - energy is released into the atmosphere and the auroras brighten and move. The neutral atmosphere is heated, creating more drag on low-orbiting satellites." He adds that it is not true that only small geomagnetic storms can occur in cycles with modest sunspot numbers. The 1859 Carrington Storm and then another one in 1921 occurred during cycles that were small and likely smaller than the current one predicted for mid-2013.

The saying 'forewarned is forearmed' may well need to be heeded in view of the current predictions on the effects of severe space weather conditions. American scientific reports state that the modern electrical high-power grid magnifies the impact of solar flares. The National Academy of Sciences (NAS) report focused on the financial impact of a severe geomagnetic storm, which could be as high as $2 trillion. "And that's just the first year after the storm," NAS warned, adding that the recovery time would be 4 to 10 years and that it is questionable whether the US would ever bounce back. China, Europe and other developed nations would be similarly impacted.

It is clear that all parties involved in nautical navigation have to be prepared for the worst. When talking about the likelihood of GPS jamming to an attentive international audience of pilots gathered in the Netherlands, professor David Last observed a considerable awareness of the subject among well-informed experts. It appears that the Royal Institute of Navigation and other institutes focusing on navigation issues have to be aware of cyber attacks through the hacking of computer systems as well as severe 'weather attacks' on the weak spots of the American GPS system.

Last and other experts advocate to combine GPS with enhanced Loran. The European Union's Galileo navigation system is more and more respected as being the alternative. It is the main rival of the ubiquitous American system. One of the solutions as regards providing an alternative was the launch aboard Russian Soyuz rockets of the first two satellites of a series of over 30 of the Galileo system from French Guiana on Friday 21st October, 2011. The dozens of satellites will orbit at a height of 23,000 kilometres. They will not only provide Europe and Russia with a new tool for their joint space endeavours, but also offer a way out from forced reliance on GPS.

Green and innovative:

Lower costs, better image

Ronald Vergouwen, managing director of IJmuiden-based Iskes Towage & Salvage, is honest when asked why a company such as his would endeavour to be green. "We do it for two reasons. Firstly, going green is a worthy cause which is supported by our customers. Secondly, there are the operational benefits. Increased sustainability means lower fuel consumption."

In a way, the EU forces its member states to go greener for the benefit of an improved air quality by achieving a reduction in the emissions of major air pollutants. The focus is on those sectors that contribute the most to an adverse air quality and on those pollutants that continue to threaten the environment and human health. Both the ports of Rotterdam and Amsterdam have committed themselves to the World Ports Climate Initiative, as have various service providers in these ports. Among them are the Dutch Pilots Organisation Loodswezen and numerous harbour towage companies.

The latter demonstrate that going green can be beneficial. Iskes Towage & Salvage does this in and outside Amsterdam port waters through the development of a tug which emits 30 percent less CO^2. "We started the Green Tug project in 2009 with a number of stakeholders, including simulating centre MARIN and Offshore Ship Designers (OSD) owned by Michiel Wijsmuller, by launching a study into the feasibility of deploying a hydrogen-powered tug," explains Vergouwen to Navigator.NL. "We found that although technically viable, this would be too expensive. After looking into other propulsion possibilities, we decided to abandon the hydrogen part in favour of a combined diesel generator with electric battery system."

The actual construction of a Green Tug will start, albeit without the hydrogen part for now... "For now because Iskes is confident that the rapid advances in hydrogen power technology will in the future indeed make it viable for use in tugs as well."

Currently, the Green Tug Project is in its final - detailed - design stage. This is carried out in close cooperation with the Damen shipyard Hardinxveld (member of de Damen Group), who also joined the project. The order for two Green Tugs will be placed before the end of 2011.

When dropping the hydrogen part, Iskes did not drop the almost zero emissions target for the Green Tug. In order to achieve zero emissions while en route to a job, the Green Tug will sail on battery power. An important design aspect lies in the energy management system. This innovative system is to make sure that the master of the tug always gets the power he needs, regardless of whether this comes from batteries or one or more diesel generators. Furthermore, the energy management system will supply power in the most efficient way, thus substantially reducing the emission of CO^2, SOx, NOx and particles. "In terms of performance, the Green Tug can match regular tugs and probably even outperform them as the electro motors that drive the thrusters react quicker than diesel engines," adds the managing director of Iskes. Iskes' powerful Green Tugs will have a 70-tonne bollard pull.

Vergouwen is happy to mention another innovative invention: that of the twin tow wire in V-configuration. The TRITON was the first tug to be equipped with a double drum, independently controlled forward winch. This feature will - of course - also be incorporated on the Green Tugs. The idea is to pay out two tow wires at the same time and control each wire independently. The invention proves handy when manoeuvring in narrow spaces such as, for example, the IJmuiden locks. It is also helpful in cases where the assisted vessel has no centre stern bollard.

Iskes' green counterpart in Rotterdam, Hamburg and Bremerhaven is Kotug. The towage company demonstrated its greener side in 2007, when it approached Rotterdam-based Argos Oil to supply sulphur-free (EN 590) bunker fuel to its tugboats in the port of Rotterdam. 'The Rijnmond Area is one of the most polluted regions in the Netherlands, which is why the Rotterdam Climate Initiative (RCI) is launched', Kotug announced at the time. Its CEO Ard-Jan Kooren added that Kotug takes responsibility for a better environment and the well being of its employees and the community. "Emissions could decrease even more through the creation of extra lay berths and shore-power connections in the port," he said.

Since then, Kotug has taken things one step further by developing the design for what is claimed to be the first hybrid tugboat in Europe. This is done in cooperation with Aspin, Kemp and Associates under the brand name EKOTUG. The Rotor Tug RT Adriaan has been retrofitted with the award winning XeroPoint Hybrid Propulsion to reduce emissions substantially. Its conversion has been scheduled for completion in the fourth quarter of 2011. The Rotor Tug design was an invention in itself, but has now become a trend setting tug again as EKOTUG. The refitted RT Adriaan has been built under class-certification. Both Kotug and AKA are confident about the environmental success of both the refitted tugs and the new Rotor Tugs RT Darwin and RT Tasman.

Navigating the Western Scheldt with 366 metres

Constantly observing and anticipating

With the new Panamax standard of 366 metres long and 49 metres wide, more and more ships of this size will sail the world's oceans and consequently also navigate the Western Scheldt (Westerschelde) to and from Antwerp. Loodswezen Scheldemonden has been well trained to safely pilot ULCCs such as the 12,600-TEU MSC Filomena.

"A matter of constantly observing and, if appropriate, anticipating," says Tom van Pienbroek as he watches fellow pilot Maarten van Vuuren slightly raise the speed of the MSC Filomena. On the Western Scheldt, the UASC Yanbu, 304 metres long and 40 metres wide, is approaching on the distant horizon from the opposite direction. "We do not want to pass her on that narrow stretch, where the fairway is only 300 metres wide. The pilot aboard that ship will now indubitably lower the speed." Moments later however, Van Vuuren reduces the speed again because the Filomena approaches the small harbour of Walsoorden. "If our speed is too high, we will damage the ships and pleasure craft which are moored here due to the shore impact which we create," he explains. A short time later, the two vessels, both towering high above the river landscape, effortlessly pass each other on a straight stretch of river.

Earlier that afternoon, 13.44 hours...

Flushing, a beautiful Saturday in late October. Van Pienbroek and Van Vuuren say hello to captain Michael Puchik and his team and quickly relieve sea pilot Hans Bakker. Together, the two river pilots will bring the Filomena from Flushing up to the Berendrecht lock in Antwerp; from there, a Flemish port pilot will take care of the final leg to the Delwaide dock. "The circumstances are almost too perfect," says Van Pienbroek - is there slight regret in his voice? Barely any wind, lightly loaded with a draught of just 10.2 metres and, since it is the weekend, barely any traffic on the Western Scheldt. In the sailing plan issued to the pilots by the Common Nautical Authority (Gemeenschappelijke Nautische Autoriteit), the trip of 36 miles to Antwerp has been divided into several blocks where the ship must be at a certain time and ultimately there is an RTA - requested time of arrival - of 16.31 hours near the lock. Van Pienbroek: "The sailing plan is a more or less compelling indication. Depending on the traffic situation and sometimes quickly changing circumstances, we as pilots have some leeway in that respect. Safety always comes first. The Western Scheldt is a winding river with a sandy bottom which is always in motion and has quite a number of shoals. In some places, the fairway is also only 300 metres wide instead of 500 metres. Had the Filomena been at its maximum draught of 14.5 metres, we would have needed to enter via a tidal window during high water. Otherwise, the ship cannot pass the shoals. Today, this however is not an issue."

Simulator

Allowing ships of 360 metres and more on the Western Scheldt is, of course, crucial to Antwerp's competitive position. More than three years ago, the Dutch and Flemish pilot corporations were approached with the request to investigate the feasibility. Van Pienbroek: "Together, we started practicing, evaluating and training with models in the full-mission simulator in Borgerhout, Antwerp. A pilot needs to learn how to sail a ship of this kind. Such ULCCs (Ultra Large Container Carriers) take up much space and as a result can hinder other ships and vice versa. Furthermore, they are extremely wide; when sailing in a bending passage or in windy conditions, the ship will consequently cover an area of up to 80 metres breadthways as it is positioned in the fairway accordingly.

This could cause problems in areas where the shipping channel is narrow; you do not want to meet large oncoming vessels there. Hence the importance of properly anticipating in consultation with others. This means you have to learn how to accelerate and decelerate with extremely heavy ships. How quickly does the ship react, how does such an oversized vessel behave?" And, concludes Van Pienbroek: "As pilots, we also needed to learn how to deal with the impact which ULCCs have on other shipping traffic such as inland barges in terms of bow and stern waves and interaction. Depending on the cargo load aboard, this can differ from trip to trip."

Ultimately, the Common Nautical Authority decided to allow 360 + metre ships on the Western Scheldt, provided certain conditions related to tidal windows, use of tugs, number of pilots, maximum depth, visibility (at least 2000 m) and wind (up to 5 Beaufort at the lock) are met. Van Pienbroek: "At the urgent request of shipping line MSC, their vessels must be able to pass through the Berendrecht lock to reach their home terminal in the Delwaide dock. Berthing at the Noorzee Terminal or Europa Terminal along the river would have been much easier. The first ULCC, the MSC Beatrice, called at Antwerp in April 2009. Experience and continuous new insights mean conditions relating to such matters as tidal windows and draught restrictions have in the meantime been eased."

Berendrecht lock

The RTA of 16.31 hours at the Berendrecht lock in Antwerp has nicely been met. Using the own positioning system of Loodswezen, 'SNMS' (Schelde Navigator Marginale Schepen or Schelde Navigator Marginal Vessels in English), the pilot can monitor on his laptop up to the decimetre where the bow and stern are in relation to the lock walls. Lateral movements of the bow and stern are also shown, indispensible for guiding the Filomena into the lock. This is because the bridge is located 120 metres from the bow and no less than 245 metres from the stern. Two tugboats behind the vessel and one in front have attached themselves and the tension is tangibly mounting on the bridge. Van Pienbroek immediately informs the captain and his team on what he is about to do. "This is very important. After all, the captain is handing over his vessel to someone he doesn't know. You need to communicate and inform." Slowly, the Filomena slides to the opposite side of the river towards the Berendrecht lock. "Always keep your eyes open. Everything is quiet right now, but all of a sudden a reckless inland barge might leave its berth just in front of our ship."

17.02 hours...

Using bow thrusters and sufficient power of the tugs, the Filomena ends up positioned perfectly in front of the Berendrecht lock which she enters effortlessly. Just a quarter of an hour later, at 17.18 hours, the ship lies properly moored inside. Van Vuuren and Van Pienbroek gather their belongings and say goodbye to the captain. Transport back home is waiting.

Pride of Holland!

All existing maps can be discarded. With Maasvlakte 2, the Port of Rotterdam is creating a new 2000-hectare port and industrial area in the North Sea which will change the Dutch coastline. The first vessel is expected to moor alongside the quay in 2013.

The construction of Maasvlakte 2 in the North Sea is a massive operation. Following years of procedural preparations, the first shovel load of sand could be deposited into the water in September 2008. Since then, the trailing suction hopper dredgers have been working non-stop. Using some 240 million m³ of sand, the port is expanded by 20 percent in one go. "Right from the very beginning, guaranteeing optimum access for even the largest of ships has taken centre stage in the design," explains Gijsbert Kant, Head of Engineering at the Project Organisation Maasvlakte 2 of the Port of Rotterdam, which bears responsibility for the new port area. "And not only in 2013, when the first ship is expected in the new port area, but also in 2035, when Maasvlakte 2 is fully operational and the water is bustling with activity." The new port area is mainly destined for container handling and chemical activities. In sync with the land reclamation, the quay walls of the first two container terminals are already under construction. The planning is for Rotterdam World Gateway (RWG) to become operational in 2013 and APM Terminals in 2014.

"Maasvlakte 2 guarantees optimum access for even the largest of ships"

Access via the Yangtzehaven

Ships will be able to gain access to Maasvlakte 2 via the Yangtzehaven on the existing Maasvlakte. This port basin, which for example houses the Euromax Terminal and the Maasvlakte Oil Terminal (MOT), will be connected to Maasvlakte 2 at the end of 2012, early 2013. Kant: "In the design phase, many alternatives for access to the new port area were reviewed. For various reasons, it was ultimately decided that Maasvlakte 2 would not have its own access but that ships would reach the area via the Yangtzehaven instead. It's a financially attractive solution which also limits the impact of the new port area's construction on the surrounding area. Furthermore, it results in a favourable flow pattern for the port estuary. In this way, economy, nature and shipping can go hand in hand."

Comprehensive research programme In collaboration with the Harbour Master of Rotterdam, pilots, tug captains and others, the suitability of the chosen entrance was extensively tested beforehand by means of a highly comprehensive research programme. "In simulations, we recreated reality with all possible variables - wind speeds, currents, ships, human behaviour, etc." The results proved positive. "By making the Yangtzehaven 600 metres wide, the two-way traffic of large vessels is almost 24/7 possible here, also in high winds." At Maasvlakte 2 itself, two turning basins of 700 meters in diameter guarantee optimum manoeuvrability. With a standard depth of 20 metres, draught is not an issue anyway.

A special point of attention in the simulations was the navigation of the Papegaaienbek, the point where ships coming from the Nieuwe Waterweg canal turn into the Maasvlakte. The busy traffic junction did not prove an insurmountable obstacle. In this respect, it did not make a difference that after the research programme had been completed the decision was taken to establish an LNG terminal including a new port basin at this bend. Kant: "We conducted additional simulation research to examine this."

"The opening up of the Yangtzehaven will create one final serious current change"

Current changes

For shipping traffic, an important aspect in the construction of Maasvlakte 2 is the change in currents along the coast, and thus in the fairway. After all, where once there was sea there is now land. "The land reclamation project changes the flow pattern significantly," states Kant. "With the construction of the new port area by now being in quite an advanced stage, 90 percent of that process however is already behind us." Important was (and still is) to constantly provide all shipping traffic with proper information related to the occurring current changes. "To this extent, we have established an innovative information system on the Internet which combines model calculations and actual measurements. All relevant parties have real-time access to this. As a result, pilots and vts operators know exactly what to expect." Kant foresees a last serious current change to occur at the end of 2012, early 2013 when the Yangtzehaven is opened up, transforming this port basin into the access channel to the new port area. "Then, Maasvlakte 2 will be exposed to tidal variation resulting in ebb and flood currents in the Yangtzehaven. As the Yangtzehaven is now a dead end basin, this is a significant change. Of course, we will closely monitor the ensuing current changes and proactively inform the users."

"We did make explicit requirements as regards wave reflection"

Waves

For the Netherlands, Maasvlakte 2 creates a new, eleven-kilometre-long stretch of coastline, consisting for two-thirds of beach and dunes and for one-third of a hard seawall (in the north-westerly corner) which among other things comprises 20,000 concrete blocks weighing 40 tonnes each. In this way, the new port area is optimally protected against extreme weather conditions. The block dam was a design of the contractor. Kant: "We did however make explicit requirements as regards the wave reflection. If the wind comes in from the northwest and the waves are three to four metres high, then the reflection off the dam must not in any way endanger passing shipping traffic. To determine the maximum allowed reflection of the seawall we set up a 1:15 scale model to extensively test various conditions and types of vessels. Together with, once again, the pilots and the Harbour Master, we evaluated the results and defined the maximum wave reflection acceptable to guarantee safe passage. The contractor then used these findings in his design of the block dam."

Right on schedule

"The construction of Maasvlakte 2 is right on schedule," concludes Kant. "That is also due to the excellent cooperation between all parties involved. In 2009, for example, the sand extraction for the new port area was at its peak. At the time, eleven trailing suction hopper dredgers were constantly plying back and forth between the sand extraction area off the coast and the land reclamation area directly next to the port entrance. Through continuous coordination with the pilots, Harbour Master, contractor, etc regular shipping traffic however was not or hardly affected by this. The high levels of nautical safety and accessibility were constantly maintained."

See Maasvlakte 2 for yourself

On the edge of the new port area, the FutureLand information centre offers an excellent opportunity to see the realisation of Maasvlakte 2 in person. Visit www.maasvlakte2.com or www.futureland.nl for more information on the location of FutureLand, opening hours etc.

HISTORY OF PILOTAGE GOES BACK A LONG WAY

Believe it or not: in a way fishermen are colleagues of maritime pilots. History tells us that certain characteristics of pilotage can be traced back all the way to ancient Greek and Roman times, when masters of incoming deep-sea vessels would engage experienced local fishermen to guide their vessels safely into the port. The similarity between the navigational know-how of local fishermen and maritime pilots still exists to this day: they both know the local fairways as no other seafarer does.

Their history has been recorded in books and magazines in maritime museums all over the world. The Martitiem Museum Rotterdam and Het Scheepvaartmuseum in Amsterdam boast important maritime history collections which also touch upon pilotage and other related topics. The library at the Maritime Museum in Rotterdam dates back to 1857. Currently, its collection consists of about 35,000 books and some 25,000 volumes of magazines. The recently refurbished Scheepvaartmuseum in Amsterdam is housed in the former Arsenal of the Dutch Navy which was built in 1656 - thwe Dutch Golden Age. Its library houses a collection of 60,000 books and numerous journals. The oldest printed book in this collection is an atlas dating back to 1482. Anybody can consult the books, journals and electronic data in the library. It was exactly on that spot that curator Diederick Wildeman was presented with a copy of Navigator.NL.

Wildeman was quick to respond positively when asked whether the history of maritime pilots is also represented at Het Scheepvaartmuseum. “Of course, we have documents from the 17th century, sea charts and even some 50 pieces of parchment dating back to the times of the (historical Dutch multinational) East Indian Company. We also have books hailing from the archives of Nederland Loodswezen, scholarly publications and surveys, old designs of pilot vessels, directives and regulations and much more,” he said, navigating Navigator.NL to the shelves full of books and journals focusing on pilotage-related issues throughout the centuries.

A wealth of maritime literature and objects has been laid down digitally in the online collection database Maritiem Digitaal - www.maritiemdigitaal.nl - which offers virtual access to the maritime collections of a vast number of Dutch museums. One can even find a picture plus description of an old pilot’s badge. Het Scheepvaartmuseum demonstrates the work of present-day Dutch pilots in practice in this multimedia presentation as part of a special exhibition on the port of Amsterdam.

Explains Wildeman while demonstrating how the presentation works: “We wanted to present the port of Amsterdam as it is today, and also the importance of the port. This is done in an interactive way. Visitors can navigate their way to a particular subject on a huge map of the entire port from Amsterdam to IJmuiden along the North Sea Canal. After that an explanation is given on one of the screens on the wall or via photographs and texts on display in front of the port map.”

Visiting pilots may be surprised to find their IJmond region colleague Willem Bentinck filmed in action while explaining the importance of safe navigation in and out of the port using the local knowledge of pilots.

Wildeman adds: “Stories about the present and past of the port are important. Particularly now, because unlike in the last century port activities are hardly present anymore in urban areas. In the case of Amsterdam, ships used to sail on the waters of the IJ past the current location of Amsterdam Central Station. There was maritime hustle and bustle on the nearby KNSM island and more. The port was never far away in the city; in the districts where dockworkers lived and on the quaysides bustling with seafarers on shore leave. All this changed in the early seventies when port activities were moved out of the city because of better accessibility for deeper draught vessels. Today, the impact of port activities on city life has become almost invisible, although the port is in fact never far away.”

The Amsterdam Passenger Terminal near Central Station is just one example of the nautical ties between the city of Amsterdam and the maritime industry. A history which for example comes alive again in the SAIL event, held once in five years, and in the area around Het Scheepvaartmuseum.

The curator is proud to mention the high level of appreciation visitors have for the refurbished museum - the glass covered Open Courtyard included - and the renewed display of its collection. Even Queen Beatrix of the Netherlands - a keen amateur sailor herself - was impressed with the result of the reconstruction which took four years to complete when she officially opened the building and saw the impressive presentation of the various aspects of life at sea and on shore.

Safety and Quality first

Dutch Loodswezen has the ambition to globally set standard in terms of providing safe, high-quality services for pilot organisations. It is therefore only logical that a couple of years ago, it developed the International Standard for maritime Pilot Organisations (ISPO) in conjunction with the European Maritime Pilots Association (EMPA). Initially hesitant, pilot organisations in more and more countries are now catching on to the added value of ISPO..

ISPO aims to provide every pilotage organisation around the globe with a universal framework to manage safety and quality issues, allowing them to continuously improve their performance and offer users, customers and all other stakeholders structured and univocal general insight into the manner in which pilotage organisations manage issues pertaining to safety and quality.

Growing awareness

ISPO is based on the ISM-code and ISO 9001, the internationally accepted generic standard used by both public and private organisations for process control and the establishment of good quality management systems. The decision to develop a similar system for the pilotage sector was based on various reasons. One of them was resolution A960, entitled 'Recommendations on training and certification and on operational procedures for maritime pilots other than deep-sea pilots', which was adopted by the International Maritime Organisation (IMO) in December 2003. This IMO resolution with its well-balanced and comprehensive list of safety and quality criteria was already quite an achievement in its own right; it however did not address just how these items needed to be organised and managed. At the same time, a number of clear international trends regarding pilotage became apparent. From the shipping industry, there for example was an obvious increase in demand for harmonisation, transparency and predictability of the services offered by pilots and their organisations, including auditable standards to determine their performance levels. At the same time, there was also a rapid increase in the number of laws and regulations adopted internationally which pilots and their organisations had to adhere to. Furthermore, a 'new attitude' towards pilotage emerged among governments around the world. Although fuelled by different reasons, nearly all these trends had one striking element in common: the compelling need for a structured, objective method to determine the actual quality level of the rendered pilot services. On behalf of the pilotage sector itself, ISPO strives to be the answer to all these trends and developments. Via the introduction of the ISO 9001-based quality management system, the initiators of ISPO have delivered an efficient, practical and cost-effective framework to meet the constantly growing challenges faced by pilot organisations as regards safety and quality management and performance.

Tailor-made

ISPO contains ten management items (see box) which a participant needs to comply with. The extent to which this is necessary however depends strongly on the characteristics of the pilot organisation in question. Guidelines are in place to deal with specific conditions and circumstances; as pilotage differs from port to port, the format holds a certain degree of flexibility which allows pilot organisations around the world to customise arrangements and procedures. The basics for ISPO compliance comprises risk management, continuous improvement and a process description on 'what you are doing'. With this method as a starting point, all relevant items and activities of a pilot organisation were translated into chapters and sections which can be used as building blocks by candidates in pursuit of meeting the ISPO criteria.

wParticipants

ISPO has been in effect since 2005. Participation is the individual decision of each pilot organisation. Currently, all Dutch pilotage regions participate, as do the Antwerp-based harbour pilots, the Varna Pilots from Bulgaria, the Forth Pilots from Edinburgh, Scotland, the pilots from Trinidad and Tobago and, most recently, the Liverpool pilots from England. The responsibility for the ISPO standard lies with the International Users Group of ISPO-certified pilot organisations (IUG).

Pros and cons

Factually speaking, there is actually nothing really spectacular nor revolutionary about ISPO. It is a customised safety and quality management system for pilot services, the concept of which has already been successfully used by the maritime industry for years. This however does not mean that the system only has pros and provides a universal solution to all management issues related to safety and quality. One danger that is always lurking is the creation of vast amounts of red tape, turning the system more into a burden than a useful aid for managing safety and quality aspects. There is no relation between the system requirements on the one hand and the individual professional judgment, responsibility and skill of the pilot on the other when it comes to safely conducting the navigation of a ship. Implementing a management system, compliant with ISPO will never, prescribe pilots where to give full starboard of go full ahead. In conclusion, there of course is also the possibility that the direct and indirect revenues of introducing the system are not in balance with the costs associated with its implementation and maintenance. The initiators of ISPO however are convinced that they have managed to substantially prevent these negative effects from occurring. The administrative burden for individual pilots as operational supporting personnel has been reduced to an absolute minimum and has been integrated as much as possible into the already existing procedures.

More information: www.ispo-code.com

The ten aspects of ISPO certification

1. Functional requirements
2. Documentation requirements
3. Management responsibility
4. Recruitment, training and qualification
5. Pilot operations
6. Logistic operations
7. Emergency response
8. User and customer related procedures
9. Risk, incident and accident management
10. Measurement, analyses and improvement

Everything moves with
Search and Rescue

For many years now, Noordzee Helikopters Vlaanderen (NHV) has been carrying out the pilotage by helicopter for the Dutch and Flemish pilot corporations. Since July 2011, NHV has also been conducting nightly Search and Rescue (SAR) flights over the Dutch Continental Shelf or the Netherlands Coastguard. Instructor Alain Bedeur: "Pilotage flights and SAR flights are two completely different things. It's like comparing driving a car on the motorway next to participating in a rally with a superfast racing car."

"Left and backwards twenty," says hoister-in-training Karel Vlaeyen into his helmet microphone. Commander Danny Plaisier of the AS365N3 Dauphin immediately responds and slightly backs away the helicopter from the shrimp cutter Jan Maria which rescue diver Daniel Lams has just boarded via the hoist as part of a training mission. "We need to spend as little time on top of the vessel as possible, actually only when dropping off and picking up the diver. Hovering directly above the vessel requires special skills, especially when it storms. Everything moves, the ship but also the helicopter, and if those two would come into contact with one another the consequences are unacceptable," explains hoist instructor Alain Bedeur. "If we fly high above the ship, it is difficult to exactly position the diver aboard the vessel via the hoist; and flying too low would create extra risk. Fortunately, we have a highly stabile and powerful aircraft in the Dauphin N3."

Training

The five SAR crews of NHV spend thirty hours training per month with the helicopter in the knowledge that there really is no such thing as too much practice. Every situation at sea can be different. A crew comprises two pilots, a diver who descends and a helicopter hoist operator who operates the cable and coordinates the operations when hovering over a ship because he is the only one who can actually see what is happening down below. Being optimally attuned to one another can make the difference between life and death, which is why the crews constantly practice in different team settings. NHV can be called in by the Netherlands Coastguard to fly a rescue mission from two hours before sunset until one hour before sunrise. These missions can range from stabilising, rendering care to and collecting a seafarer who is unwell and evacuating people from sinking ships to searching for people in the water or runaway kite surfers. During the day, the SAR activities are taken over by the Bell AB412SP helicopters of the Department of Defence. With its helicopters (three in total), NHV also carries out the helicopter pilotage of ultra large and deep-draught vessels and the storm pilotage for the Dutch and Flemish pilot corporations.

High line

It is expected that on average, NHV will be called in by the Coastguard twenty times a year for 'the real deal'. Since July 2011, this has occurred four times. A burst appendix, a kite surfer who had drifted out to sea, a heart attack and a sailing boat which had been ripped open by a floating container. In the case of illness or injury, a doctor is first picked up in Den Helder before the helicopter proceeds to the ship. First the diver is lowered, then the doctor, his medical equipment and a stretcher. Next, a quick assessment is made of how long it will take before the patient can be transported. If this takes too long, the helicopter flies off for refuelling, either somewhere along the coast or at a platform.

During this specific training mission, there is no doctor on board. The captain of the Jan Maria from Goedereede has been kind enough to make his cutter available for an exercise and diver Daniel Lams has been deposited at the stern with pinpoint accuracy. Blazing fast. Lams: "As I am descending, I already check the deck for obstacles which may possibly get in the way. Sometimes I cannot land on board; if this is the case, I 'land' in the water near the railing and climb aboard. A special role is reserved for the high line, a separate cord which I hold and which is attached to the hoist. This more or less forms the umbilical cord between me on the ship and the helicopter, which can then safely stay at a distance of about twenty metres away. With the high line, I can also guide the stretcher on its way up, prevent any spinning and, by applying pressure, to get the stretcher aboard the helicopter more easily."In the case of a real evacuation, the doctor is hoisted up first, followed by the stretcher with the patient, then the valises and finally the diver; for a short period, the helicopter is very close on top of the ship again in this phase. During the training with the Jan Maria, a plastic bag with shrimps is hoisted up instead of medical equipment - a small gift from the captain. "Almost perfect," says instructor Alain Bedeur to trainee Karel Vlaeyen. "But I felt you were on top a couple of seconds too long during your retrieval. Let's go again."

Always exiting

SAR missions with real searches for example involve kite surfers who have failed to return to the shore on time. Commander Danny Plaisier: "The Coastguard gives us the coordinates and, depending on the size of the object which needs to be located, we then systematically start searching in predetermined patterns with our searchlights, adjusting our height and speed accordingly. SAR is always exiting." Alain Bedeur agrees: "Comparing SAR missions and helicopter pilotage is like comparing driving a sports car in a rally next to driving on the motorway. With SAR, you never know what will happen." Quite the unexpected sometimes, says Daniel Lams. "Take that sailing boat in distress which we assisted. Ultimately, the vessel was towed to IJmuiden by the Royal Netherlands Sea Rescue Institution (KNMR). There, Customs found 60 kilos of marihuana on board. The two crew members were immediately handcuffed."

Loodswezen

www.loodswezen.nl