

# SCHOTTEL REPORT



## SUEZ CANAL

A major waterway with ambitious plans for further development

BLUE CTRL: Demanding the  
vessels' full potential

SCHOTTEL RUDDER ECOPELLER®  
Sustainable all-rounder

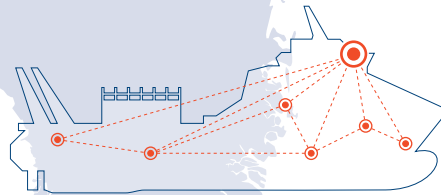
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**THE SOLUTION: FAST AND DURABLE** 29° 34' N, 90° 23' W

A particular challenge: the American offshore supply vessel *Odyssea Phoenix* had to be converted and prepared for an important assignment in a very short time. **Page 06**



**TAKING IT TO THE NEXT LEVEL – TOGETHER** 50° 8' N, 7° 34' O

With Blue Ctrl, ULSTEIN and SCHOTTEL offer new solutions to seize any vessels' full potential. **Page 04**

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**GATEWAY FOR GLOBAL TRADE** 29° 58' N, 32° 35' O

Following major expansion work, the Suez Canal is now navigable for the largest and heaviest container ships. Shipping companies and industries benefit from the modernization of the waterway. **Page 10**



### NO SITUATION TOO DIFFICULT 31° 18' N, 120° 35' O

Nancy Xiao, a Spares Supply Manager for SCHOTTEL in China, not only supports customers – she also believes that her job offers her many opportunities for career growth. **Page 14**



## DEAR READERS,

Culture is a key aspect of international business. In the maritime market, in particular, we work with a large variety of people from different countries and cultural backgrounds. Global networking and an understanding of each party's needs is essential – such as when a contract is negotiated in Europe, the resulting vessel is built in Asia and the place of operation and maintenance is South America.

Today, technology augments cross-border interactions. Nevertheless, technology alone does not build relationships. The foundation for good working relationships across the world is personal presence, being next to customers and partnering with them face-to-face. To this end, SCHOTTEL has become increasingly decentralized over the last five decades and, in practical terms, now has 16 local subsidiaries worldwide.

Long before the Internet, e-mail, and social media were able to bridge long distances, SCHOTTEL sales managers stood on customers' office doorsteps – and, in an era when English was not yet as common, often even spoke in local languages. The result was sincere interest and a sense of rapport. Thanks to this concept, our international local presence grew.

To us, decentralization does not simply mean having addresses around the globe, but rather a worldwide network of colleagues who are able to deliver the company's non-material assets to different countries and cultural backgrounds. Proximity allows us to ask for feedback and to listen carefully – whether the response is a compliment or a complaint. It is about learning what is important to our customers, apart from steel.

I believe this is how SCHOTTEL is able to give the company a personal feel. What we get back is an honest gauge of customer satisfaction. It is less B2B than B2U: business to you in the global maritime market.

Happy reading,

Stephan Camp  
General Manager SCHOTTEL do Brasil

# TAKING IT TO THE NEXT LEVEL – TOGETHER

SCHOTTEL and the Norwegian ULSTEIN Group are using a software platform to simplify the automation of numerous vessel types, including previously neglected smaller vessels. This enables them to be optimized as overall systems and makes it possible to identify potential

**S**ensor technology and digitalization have experienced an enormous boost in development over the past few years. In conjunction with intelligent software, this is now opening up entirely new possibilities, also for smaller vessels and special vessels, which SCHOTTEL intends to utilize for the benefit of its customers. The company has embarked on a new course by founding the joint venture Blue Ctrl together with ULSTEIN. In addition to benefiting from the familiar propulsion expertise, customers will also be supported in networking the individual components of their vessels, enabling them to utilize the full potential. The basis for this is formed by the software platform X-Connect. With its modular structure and simple plug and play capabilities, it maps complex processes in a user-friendly manner.

## FOR GREATER SAFETY AND EFFICIENCY

The clear goal of this digital support is higher efficiency and enhanced safety for the crew on board. At the same time, it enables detailed fleet management by the owner or operator back onshore.

For this, the systems provide condition-based data about the predefined components of the vessel – with a whole range of advantages, such as optimization proposals for fuel consumption, operating behaviour or maintenance. Particularly in the area of propulsion, customers can make use of SCHOTTEL's decades of experience, which has been expanded still further through the partnership with ULSTEIN.

The X-Connect software provides a platform for all standard hardware components and thus facilitates the configuration of Input/Output modules (I/Os), electronic controllers (PLCs) and networks, and even the graphical user interface on the display – all in a single tool. Applications with different ranges of functions can be bundled together: the Alarm and Monitoring System (AMS) is used for signal monitoring.

The Integrated Automation System (IAS) enables individual components, such as valves or pumps, not only to be monitored, but also to be actively controlled and automated. For example, the IAS independently corrects any instability in the water by influencing the trim and heel of the vessel via the valve control of the ballast tanks. At the next function level, a Power Management System (PMS) can be used to increase the overall efficiency of all the machinery and to tailor energy generation to requirements. The Energy Management System (EMS), which is currently under development, goes a step further. It intelligently optimizes the operation of engines and generators for power production and predictively adapts to the power requirements of the vessel. In the case of hybrid energy supply, the system regulates the combined use of batteries and engines.

## SIMPLE, FLEXIBLE, SCALABLE

The systems described here have already been in existence for some time, but restricted to very large and complex vessel types. For smaller models, such as tugs, they have simply been too expensive until now. Jan Glas, Sales Director Automation & Digital Products at SCHOTTEL, explains the reason for this: "The conventional systems collect many individual signals from many individual components from different manufacturers on the vessel. These signals are then processed in control and monitoring systems developed specially for this vessel. That is very costly." This is because a separate solution has to be developed for each component on the basis of the available signals.

A software-based platform, such as X-Connect, adopts exactly the opposite approach. "I don't have to program new software, but can use the mouse to drag the units that are to be monitored or controlled, for instance a rudderpropeller or a main engine, into the system from a list," Jan Glas explains. "In this way, I can simply select from the database the different pumps and



**JAN GLAS**  
Sales Director Automation  
& Digital Products

✉ [sales@schottel.com](mailto:sales@schottel.com)

valves I want to monitor on my vessel and configure an individual overall system myself. Basically, I replicate the vessel in our software on a modular basis." This is then used to automatically generate a list of signals that are taken from and supplied by the units – in the traditional manner via cables and terminal boxes. Irrespective of the level of automation desired, X-Connect can be tailored to the current requirements.

**FULL DIGITAL SUPPORT**

"The main advantage of our digital solutions is their flexibility," says Jan Glas. "This is evident during the initial configuration using drag-and-drop, but also throughout the entire service life

of the vessel. After all, the systems can be maintained remotely, with the result that updates can be loaded via the internet. AMS, IAS, PMS and EMS can be expanded as required to include new components. If these are equipped with sensors, it's a simple matter of plug and play."

Looking to the future, SCHOTTEL is offering an increasingly dense network of data in a clear form through the interaction of X-Connect and the in-house Fleet Management Portal. This holistic approach enables customers to have even more efficient and safer operation and management processes – from individual vessels to the entire fleet.

**AMS**  
Alarm and Monitoring System

**IAS**  
Integrated Automation System

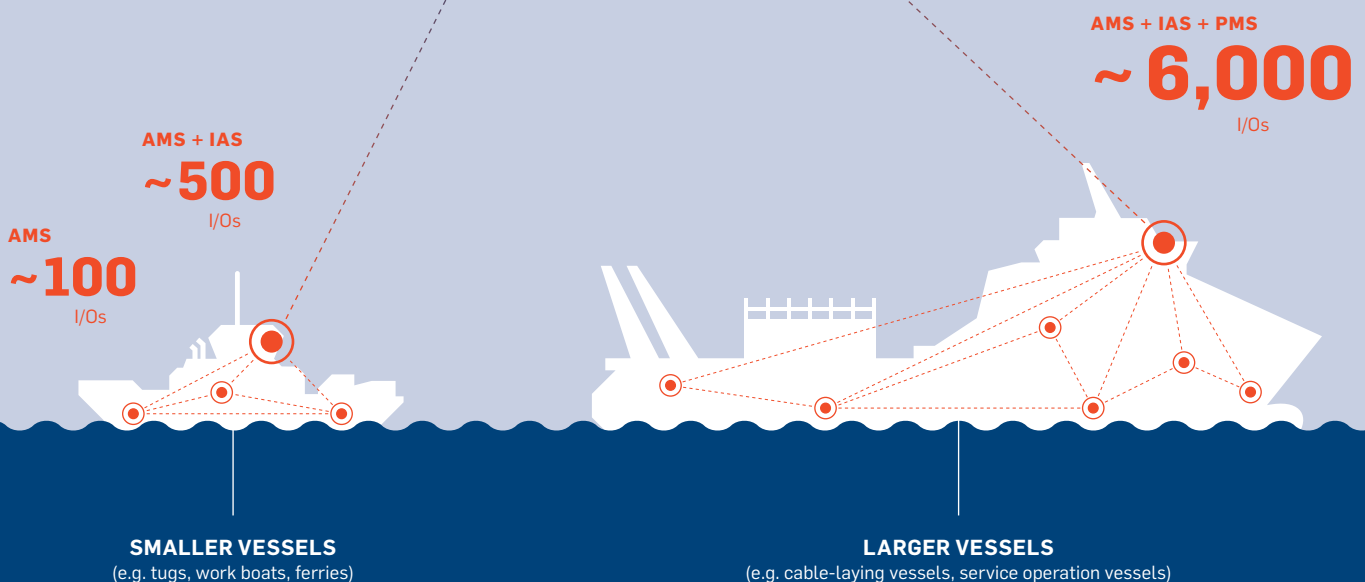
**PMS**  
Power Management System

**SIMPLE +**  
all configurable in a single tool

**SCALABLE +**  
suitable for vessels of all sizes and types, new buildings and retrofits



**+ CLEARLY ARRANGED**  
modern, intuitive user interface



# THE SOLUTION: FAST AND DURABLE

The order from the American transport company Odyssea Marine posed an unusual challenge, even for the experienced retrofit specialists at SCHOTTEL. This was because one of the company's offshore supply vessels had to be converted in a very short time and prepared for an important charter contract

**T**o ensure that everything runs smoothly on offshore platforms, reliable supply around the clock is essential. Offshore supply vessels are used to secure this, even in extreme weather conditions. They deliver important commodities, raw materials and tools, without which work on the high sea would not be possible. This places particular requirements on the propulsion systems, including the need to maintain an exact position for days on end. It is also necessary to be able to manoeuvre the vessel, which weighs several tonnes, quickly and precisely. By fulfilling the order, the propulsion system makes a decisive contribution to the commercial success of the vessel. At the end of the day, there are two things that are most important for the operator: reliability and punctuality. If the deadlines are met, there are lucrative deals in the pipeline. If not, high penalties.

## RACE AGAINST THE CLOCK

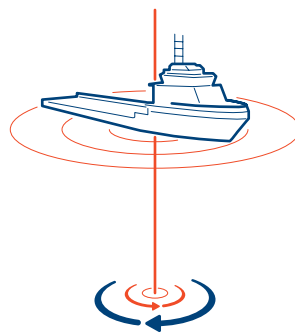
The Odyssea Phoenix is one such supply vessel – 92 metres long, over 18 metres wide and with a loading capacity of 3,300 tonnes, corresponding to more than 80 trucks with an overall mass of 40 tonnes each. When it was on sale in 2018, Odyssea Marine seized the opportunity. However, before the vessel could be put into operation, the obsolete propulsion system had to be replaced. It had already failed after a brief period of operation with the previous owner, and a simple repair was not possible. The new propulsion solution not only had to be more durable than its predecessor, it also had to be available quickly. Time was of the essence: the supply vessel was already booked for a contract in the Gulf of

Mexico, one of the most important oil-producing regions of North America.

Since Odyssea Marine had already had good experiences with SCHOTTEL regarding other vessels, the propulsion expert with its proven retrofit team was the first port of call. The company's azimuthing rudderpropellers are particularly suitable for precise dynamic positioning. "The decision to use two SRP 460 FP with an input power of 2,000 kW each was then made relatively quickly. This is a bestseller that is particularly suitable for such applications," Jörg Majewski, Sales Director Modernization & Conversion, recalls. "Moreover, they were available particularly quickly."

## SHORT DISTANCES

Altogether, the entire modernization only took about three months – thanks to flexibility and sophisticated logistics. The propulsion units and electronics arrived punctually at the US shipyard, where it was possible to install them together with a component manufactured specially for the customer. "An adapter flange enabled us to dispense with time-consuming steelwork and fit the propulsion system precisely into the existing well," Jörg Majewski, who closely supervised the project with his team, explains. The short communication channels between the shipyard and the SCHOTTEL subsidiary in Louisiana proved to be particularly valuable, as did the intensive exchange of information between the American and German colleagues. The work paid off: Odyssea Marine was able to put the vessel into operation on schedule.



**DYNAMIC POSITIONING**  
With pinpoint control of the propulsion units, dynamic positioning systems compensate for external factors to which the vessel is exposed on the high sea. In this way, it is easy to keep the vessel on course, even in rough seas.



## TRADE FAIR DATES 2020

**4-6 FEBRUARY** // EUROMARITIME, FRA

**18-20 MARCH** // ASIA PACIFIC MARITIME, SGP

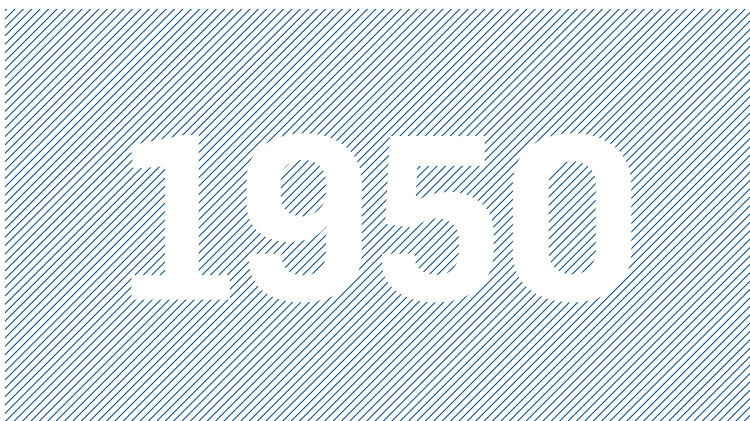
**13-14 MAY** // SJÖFARTENS DAG – MARITIME DAY, ALA

**19-21 MAY** // NAVALIA, ESP

**1-5 JUNE** // POSIDONIA, GRC

**22-24 JUNE** // BALT MILITARY EXPO, POL

**29 JUNE - 3 JULY** // ITS, SGP



Josef Becker experimented with bevel gears from old car axles and finally developed a Z-drive in which the underwater part with the propeller could be steered through 360 degrees. This was the first SCHOTTEL Rudderpropeller. In 1950, the company's motorboat Magdalena was the first ship to be equipped with this new thruster, which had an input power of 150 hp, or approximately 110 kW.

This propulsion system was sensational in its day and rapidly found interested takers: the next SCHOTTEL motorboats with rudderpropellers were ordered by the German river police and the French Army of the Rhine.

## WHAT CUSTOMERS ARE SAYING ABOUT SCHOTTEL

Mystic Cruises is said to be the first Portuguese company to build a cruise ship in more than 50 years. With World Explorer, the company launched its first ocean vessel in April 2019 and has already announced the construction of five more.

### HOW WILL MYSTIC CRUISES DIFFERENTIATE ITSELF FROM ITS COMPETITORS IN THE MARKET?

**Mário Ferreira, Chairman of Mystic Invest Holding:**  
Sailing under the Mystic Cruises brand, the vessel incorporates many innovations that help maximize safety and minimize the ship's environmental impact. The two onboard SCHOTTEL SPJ 82 Pump Jets can propel this vessel at a near-silent cruising speed of 5 knots without scaring sea life away. Mystic Cruises' World Explorer is among the first cruise ships to employ this technology to bring guests closer to marine wildlife by minimizing underwater noise.

### WILL THERE BE FURTHER COOPERATION AFTER THE WORLD EXPLORER?

The sister ships World Voyager and World Navigator, launching in 2020 and 2021 respectively, will also be equipped with SCHOTTEL Pump Jets.



### WHY DID YOU CHOOSE SCHOTTEL?

Our goal is to build one of the cleanest, safest and quietest ships in our category. We designed our cruise ships to bring our guests closer to and experience more of a destination while ensuring that we do our part to help sustain these unparalleled places so we can enable future generations to enjoy them too. These thrusters are perfect for achieving the goal of bringing adventurers closer to more wildlife – safely and sustainably.

# THREE MILLION CARS A YEAR

In a region in which roads are scarce and river crossings are a part of daily life, BSL Navigation has partnered with SCHOTTEL to offer fast and reliable ferry services, growing from a single ship to a fleet of 20

In Sarawak, Malaysia, waterways are an important means of transportation. Sarawak, located on the island of Borneo, is the largest of Malaysia's states and has about two and a half million inhabitants. In certain areas, ferries, express boats and small boats replace roadways. BSL Navigation is the largest vehicle ferry operation. When Liew Shark Sen and his wife and business partner Christina Kong founded their ferry business, they had no idea that they would one day be the biggest operator of vehicle ferries in Malaysia, moving more than three million cars and trucks a year across Sarawak's rivers. "We had one 30-metre ferry and 11 employees back then," Christina Kong remembers. "Our mission was to grow the business." By the end of 2019 the company expects to have more than 20 ferries and 250 employees.

SCHOTTEL has been part of BSL Navigation's success almost since the beginning. BSL first bought a ferry equipped with a SCHOTTEL Pump Jet shortly after the company was established in 1991, and the propulsion expert has been supporting the company ever since.

## 20 HOURS A DAY, SEVEN DAYS A WEEK

As Christina Kong points out, the main challenge of her business is that BSL, a private operator,

provides a vital public service. "We can't stop even once," she says. Otherwise, a backlog of vehicles would be waiting to cross the river. "We have to operate 20 hours a day, seven days a week." And all of this must be accomplished without delays, Kong adds. "It happens that BSL even has to dispatch a ferry in the middle of the night when emergency services are needed and an ambulance has to reach a rural village." SCHOTTEL has been a reliable partner for BSL. "With these pump jets, it is possible to fulfil public expectations," Christina Kong states.

The thruster manufacturer aims to provide the best possible service to its customers, including BSL. "All these years, we have had a very good relationship with SCHOTTEL, good support on service and parts," according to Christina Kong.

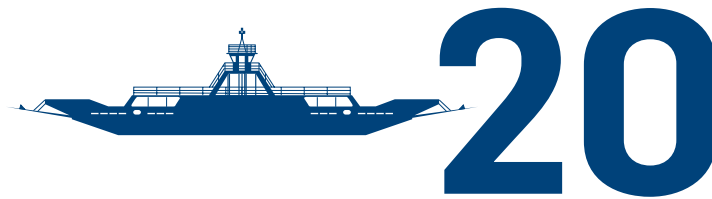
BSL operates on a very tight time frame, and even the smallest delay has large repercussions for BSL's customers. With the German company's new enlarged premises in Singapore, it is possible to offer even more speedy service to remote areas. SCHOTTEL Far East has been situated in Singapore since the 1970s and recently moved to the new shipyard centre in southwestern Singapore.



## AT A GLANCE

BSL Navigation is the largest vehicle ferry operation in Malaysia. The busiest route is the Pusa-Beladin crossing, with a distance of about 1.1 kilometres. BSL ferries about 2,300 vehicles over the Batang Saribas river per day. The 5.2-kilometre Sebuyau service on the mighty Batang Lupar river requires three BSL vessels operating at any given time, and four during festivals when vehicle numbers are highest.





By the end of 2019 the company expects to have more than 20 ferries and 250 employees.



BSL ferries about 2,300 vehicles – including motorcycles – over the Batang Saribas river per day.

**WORTHWHILE INVESTMENT**

Christina Kong knows that with every SCHOTTEL thruster, BSL buys a high degree of support and service availability: “They have been proven to be very reliable.” Indeed, despite a potentially higher initial investment in a vessel equipped with two SCHOTTEL Pump Jets, the fuel savings compared to a vessel fitted with four fixed pitch propellers and the incomparable manoeuvrability make Pump Jets a worthwhile investment. Over the past eight years, BSL has ordered a new ship set of SCHOTTEL Pump Jet 82 every two to four years. Recently, the company has been expanding its ferries equipped by the propulsion expert rather progressively, with plans to possibly expand up to a fleet size of 30 ferries within the next 5 years. BSL now has the largest SCHOTTEL Pump Jet-equipped vessel fleet in the region.

**KING TIDES AND MONSOON SEASON**

The company is putting the ferries to good use. The 5.2-kilometre Sebuyau to Triso crossing on the mighty Batang Lupar river requires three BSL vessels operating at any given time, and four during festivals when vehicle numbers are highest. “This crossing is very special as it is the only river with three big ferries,” according to Christina Kong. The river is very wide and sees strong currents during so-called “king” tides – the highest tides – and during the monsoon season at the end of the year.

**GOVERNMENT PRIORITY**

Sarawak’s rivers will continue to be a main means of transport, Christina Kong explains. Ferries will still be needed in the future, especially to serve people living in rural areas. She adds that the government has always made it a priority to improve the connectivity of rural areas of Sarawak by means of providing these ferry services, immensely reducing the travel time between towns. “BSL is looking to expand into more areas as ferries are still needed to carry vehicles and people, especially in rural villages where roads are not fully developed and there are no bridges,” according to Christina Kong. “My company is still expanding, and we will be getting more SCHOTTEL Pump Jets for our new ferries to ply in rivers with conditions only suitable for ferries equipped with this kind of thruster,” says Christina Kong.

Christina Kong and Liew Shark Sen are the founders and operators of BSL Navigation, the biggest operator of vehicle ferries in Malaysia.



# GATEWAY FOR GLOBAL TRADE

The Suez Canal has been one of the world's most important trade routes for 150 years. Following major expansion work, it is now navigable for the largest and heaviest container ships. Not only shipping companies benefit from the modernization of the waterway, but also shipyards and maritime service providers



A passage through the Suez Canal is something special, even for experienced mariners. On arriving from the north, they are assigned a mooring off Port Said. Once enough vessels have gathered, they set off in a convoy. Pilots board the vessels together with agents of the Suez Canal Authority. Extensive inspections ensue – papers, equipment, freight. “In the past, barbers and petty dealers also came to ply their trade. Nowadays, that is prohibited,” Thomas Jung recounts. The 60-year-old former captain used to sail vessels through the Suez Canal. Now he is professor of Maritime Studies at the City University of Applied Sciences in Bremen, Germany.

Jung has experienced the increase in the pace of maritime shipping. Goods are being dispatched around the world ever faster and in ever larger ships. The Suez Canal plays a key role here. Around 10% of global trade squeezes its way through the canal, which stretches through the desert sand for 193 kilometres like a blue ribbon between the Sinai and the east of Egypt. Twenty years ago, 14,000 vessels passed through the canal annually, transporting 456 million tonnes of freight. Last year, there were more than 18,000 vessels – with 1.1 billion tonnes. Most ships are carrying containers. However, tankers, bulk freighters and car carriers are also frequently seen in the Suez Canal. “Over the past few decades, goods traffic has continuously reached new record levels,” says Professor Akram Elentably, who is investigating the significance of the Suez Canal at the Department of Maritime Logistics at the King Abdulaziz Uni-

versity in Jeddah, Saudi Arabia. Forecasts are based on the assumption that the number of users will continue to rise, supported by the growing volume of trade with the emerging economies in Asia. The Suez Canal is also an important waterway, however, for vessels putting into the increasingly large ports of Africa.

#### **SEA ROUTE SHORTENED BY UP TO 10,000 KILOMETRES**

The shortcut enables ships to avoid the detour around the southern tip of Africa. Depending on the specific route, the voyage round the Cape of Good Hope is 3,000 to 10,000 kilometres longer. Shipping companies are prepared to pay a high price for the practical shortcut. For large vessels, a passage through the Suez Canal costs several hundred thousand US dollars.

The ancient Egyptians already dreamt of a modern waterway between the Red Sea and the Mediterranean. The pharaohs made early attempts. Others followed in the ensuing millennia. The Isthmus of Suez, a natural depression dotted with salt lakes, was ideally suited to the construction of the canal. The breakthrough was achieved by a Franco-Egyptian company. After a construction period of ten years, the canal was opened in 1869. When the company ran out of money in 1875, the British bought into the project. They controlled the canal up until the Suez Crisis in 1956, when Egyptian President Gamal Abdel Nasser nationalized the waterway plied by the oil tankers bound for Europe. The importance of the connection also became apparent after the Six-Day War between





Fits! Even the world's largest freighters can navigate the Suez Canal. In 2018, 5,706 container ships traversed the waterway.

Israel and the Arab states. Egypt imposed a blockade, closing the Suez Canal from 1967 to 1975. The tankers had to take different routes. Following the reopening of the Suez Canal, the freight volume increased exponentially. Ever more ships came, and soon they were too large to navigate the waterway. The channel was no longer deep enough. Furthermore, there were bottlenecks at the entrances in Suez and Port Said.

For a long time, the canal could only be used as a single-lane waterway. Ships were forced to stop on the lakes and in artificial bays to allow oncoming traffic to pass. Five years ago, a passage through the canal still took about 22 hours. This was too long in a branch of extreme price wars in the container shipping sector, in which time is money. The canal risked becoming less attractive.

#### **IMPORTANT SOURCE OF FOREIGN CURRENCY FOR EGYPT**

For this reason, Egypt decided in 2013 to implement a massive expansion of the canal and the adjacent region. The canal fees are of vital importance to the country. They are levied in US dollars – and are a major source of foreign currency. Prior to the expansion, annual revenue was more than 5 billion US dollars – today, the figure is 5.8 billion. By 2023, this is forecast to increase to 6.5 billion.

The expansion of the canal and adjacent areas commenced in 2015 and cost the equivalent of more than 8 billion US dollars. To finance this, the state issued bonds for the country's citizens. Over a length of 72 kilometres, the canal

now has two channels. It was a Herculean task. Excavators and dredgers shifted more than 500 million cubic metres of earth. Today, the Suez Canal has a depth of 24 metres. Even the world's largest container ships can navigate it. By 2023, daily traffic is forecast to total 97 vessels. A new record was set in August 2019 when 81 vessels carrying 6.1 million tonnes of cargo used the canal on one single day. Following the expansion, the passage time has been halved to eleven hours. Logistics expert Elentabably sees this as an important advantage. "This could make the Suez Canal an alternative to the Panama Canal, for instance on the Hong Kong – New York route." The Central Americans have not been sleeping on the job, however, and the Panama Canal has also been expanded to accommodate larger vessels. 6% of global trade passes through the 82-kilometre waterway connecting the Atlantic and the Pacific. As vessels have to pass through four locks, the passage takes as long as that through the Suez Canal, which is more than twice as long.

#### **PORT SAID**

The coastal city on the Mediterranean is the gateway to the Suez Canal. It is home to the country's second-largest port after Alexandria. The Egyptian government is hoping that the expansion of the Suez Canal will also provide a boost to the economy of the region around Port Said.

# 1.1 BILLION

tonnes of cargo were transported through the Suez Canal in 2018.

# 18,174

vessels used the Suez Canal in 2018.

## ISMAILIA

The fast-growing city is the home of the Suez Canal Authority. It is located on one of the lakes situated along the waterway and has a population of 1.3 million. The city is linked to the other side of the canal by two road tunnels, a rail tunnel and modern double-ended ferries.

## EXPANSION

Since completion of the expansion in 2016, two-way traffic is now possible along a 72-kilometre section of the Suez Canal. This has halved the passage time to eleven hours.

## SUEZ

Prior to construction of the Suez Canal, the ancient trading town had lost all significance and only had a residual population of 1,500. 150 years later, the number of residents has grown to 741,000. The port, in particular, benefits from the shipping traffic through the canal.

## SUEZ CANAL REMAINS A MAJOR WATERWAY

Maritime Studies Professor Jung is certain of one thing: "For the foreseeable future, the Suez Canal will remain a very important waterway." He sees no serious competition from the North-east Passage. Today, the shortcut along the Arctic is primarily viable for general cargo ships, as the region is ice-free more frequently than in the past due to climate change. The Egyptian government does not consider its Suez Canal to be just a transport route. However, it sees it rather as the vital artery for the entire region. A development plan envisages the expansion of the adjacent ports and a new technology hub. In this way, the state hopes to create jobs away from the overcrowded metropolises. Conurbations such as Cairo, with 20 million residents, are bursting at the seams. The region around the Suez Canal can only develop if the waterway does not divide it into two parts. The expansion will include five new tunnels for road and rail traffic. Additional ferry lines are also crossing the canal – for example in the port city of Ismailia. This means new business for shipyards and suppliers.

## ORDERS FOR FERRIES AND TUGS

The first two new ferries entered service three years ago. They are modern double-ended ferries that allow a high frequency of crossings. The propulsion systems on double-ended ferries are arranged in such a way that the ferries can navigate in the narrow channel of the Suez Canal, irrespective of the direction of travel.

Numerous services relating to the canal also create jobs. The channels have to be kept clean and free of sand, for example – a task performed by gigantic dredgers. The crews of 31 tugs also work to ensure safety in the Suez Canal. In the event of accidents, they rescue, extinguish, protect and recover. Egypt intends to expand the facilities of Port Said still further in the coming years in order to attract more ships to the Suez Canal. This would be another step in equipping the waterway and its region for the future. For Egypt, this is more than merely a plan – it is a passion. That is why the government has dubbed the Suez Canal development project as the "great Egyptian dream".

## WHAT IS YOUR GOAL BEHIND DEVELOPING THE AREA SURROUNDING THE SUEZ CANAL?

The Suez Canal Area Development Project is based on Egypt's dire need for mega-projects that support the national economy with revenues beneficial for the current and the coming generations as well as capitalizing on the current potentials in the Project's ports and industrial zones, and its hinterland to establish logistic and industrial zones that rely on the utilization of the cargo transiting through the Suez Canal in their establishment. Among the proposed industries are: car assembly, glass, pharmaceuticals, electronics, textile, woodwork, furniture, paper, sugar, food packing and packaging, petrochemicals, oil refining, mining, distribution and redistribution logistics centres, bunkering and vessels services, shipbuilding and ship repair, manufacturing and maintenance of containers. The geographical location of the project comprises: Al-Arish Port, East Port-Said Port along with its hinterland, West Port Said Port, the Technology Valley in the east of Ismailia, Al-Adabeya port, Sokhna Industrial Zone and Sokhna Port. It is expected that the Suez Canal Area Development Project will achieve an annual income of about 100 billion US dollars in the near future.



**ADMIRAL OSAMA RABIE**  
Chairman  
Suez Canal Authority



Nancy Xiao, 39, has been with SCHOTTEL in Suzhou, China, for over 15 years. The Spares Supply Manager says that in the time with the German company, she has grown as a person and as an employee. She enjoys meeting her colleagues after work and spending time with her husband and growing family.

# NO SITUATION TOO DIFFICULT

Nancy Xiao, a Spares Supply Manager in Suzhou, China, joined SCHOTTEL about 15 years ago as a recently graduated marine electromechanical engineer. Not only can she support customers, she also finds her job offers her many opportunities for career growth

**N**ancy Xiao, 39, has been with the propulsion expert in Suzhou, China, for more than a third of her life. She is a Spares Supply Manager for SCHOTTEL (Suzhou) Trading & Service Co., Ltd. (SSTS), a subsidiary in the Chinese city that is situated on the Yangtze, about 100 kilometres west of Shanghai.

She first started working for SSTS in 2005, after graduating from Nantong Institute of Technology with a degree in Marine Electromechanical Engineering. Xiao was drawn to the company because of its strong reputation in the marine industry. When she started, the team was much smaller. "There were just two employees, one was a manager and one was a service assistant. The latter one was me." Today, there are ten people in her team, and she herself climbed the career ladder.

## URGENT CASES

Her work is driven by the clients' needs and fulfilling them quickly and thoroughly. An example for a typical morning might be a customer calling to tell her about an oil leakage. "These are usually urgent cases, so I need to act quickly," says Nancy Xiao. After talking to the representative, Nancy Xiao carefully checks the manual, identifying the replacement parts that will be needed from a technical drawing and preparing an offer accordingly. As soon as she has a "go" from the customer, she coordinates with other departments to arrange the delivery of the parts as soon as possible.

Nancy Xiao feels one with the SSTS team spirit, including how serious everybody is about the work. Just one example was an emergency that took place about three years ago. A government vessel with a SCHOTTEL Twin Propeller unit was experiencing some technical problems. The ship was urgently needed for an expedition to the South Pole. "The ship had to be fixed even though it was a national holiday." The team came together and worked through the vacation.

"Finally we finished the repair job, made our customer satisfied with it, and the scientists could embark on their expedition," Nancy Xiao remembers. Working hard to meet customers' needs is one trait that she has learned to value during her time at SCHOTTEL. The company offers her opportunities to grow, she says: "I'm very lucky to be working here."

## GROWING AS A PERSON

Nancy Xiao, who is married and has a young son and is expecting a baby, explains that the trust placed in her gives her a lot of faith in her abilities: "I'm confident I can handle even very difficult situations." Such as taking over a heavier workload when a colleague is away. She remembers one time during which a colleague was absent for several months: "I was very busy, but my boss gave me a lot of support."

In her spare time, she likes cooking for her family and reading. The engineer also likes to find the time to meet her co-workers outside of the office to have dinner together. "I feel happy because of the good atmosphere in our team."

She has also found her job is an ideal place to learn about the world. SSTS is truly international, and Nancy Xiao enjoys working with customers and colleagues from many different countries – often times her customers are international shipping companies docking near Suzhou. In addition, talking or e-mailing with colleagues in Germany is part of everyday work. She spent two weeks in Germany at SCHOTTEL headquarters, getting hands-on experience and taking part in specialized workshops on the quality of the German company's products. "I learned how to explain SCHOTTEL parts to everyone, and the knowledge has grown everyday within the last almost 15 years," she comments, looking back at her career with SSTS. Nancy Xiao says she has truly grown as a person and an employee along with SSTS Suzhou.

# SUSTAINABLE ALL-ROUNDER

**T**he SCHOTTEL Rudder EcoPeller (SRE) proves its worth across a wide range of applications with its unique combination of powerful propeller thrust and fin. With its special, hydrodynamically optimized design the SRE generates maximum steering forces, thereby enabling top performance in terms of overall efficiency and course stability. This in turn reduces fuel consumption and ensures lower operating costs and emissions. Maximum mechanical capability is also assured as the SRE is systematically designed as an L-drive. This means it does not have an upper gearbox inside the vessel, which would reduce the degree of efficiency. On the market for the past three years, the EcoPeller has repeatedly demonstrated its versatility. From ferries in Norwegian fjords to Chinese tankers, and from private yachts to military vessels: with a power range from 500 to 5,000 kW, the SRE offers the appropriate solution for every application.



## EFFICIENT

Combination of fin, powerful propeller thrust and hydrodynamically optimized design for maximum overall efficiency



## VERSATILE

Optimal integration into hulls of all types and sizes  
→ Power intakes optionally as L-drive, Z-drive or hybrid SYDRIVE variant  
→ Propeller module and azimuth module in individual lengths



## SUSTAINABLE

Maintenance and service-friendly design as well as optimized corrosion protection for durable operation



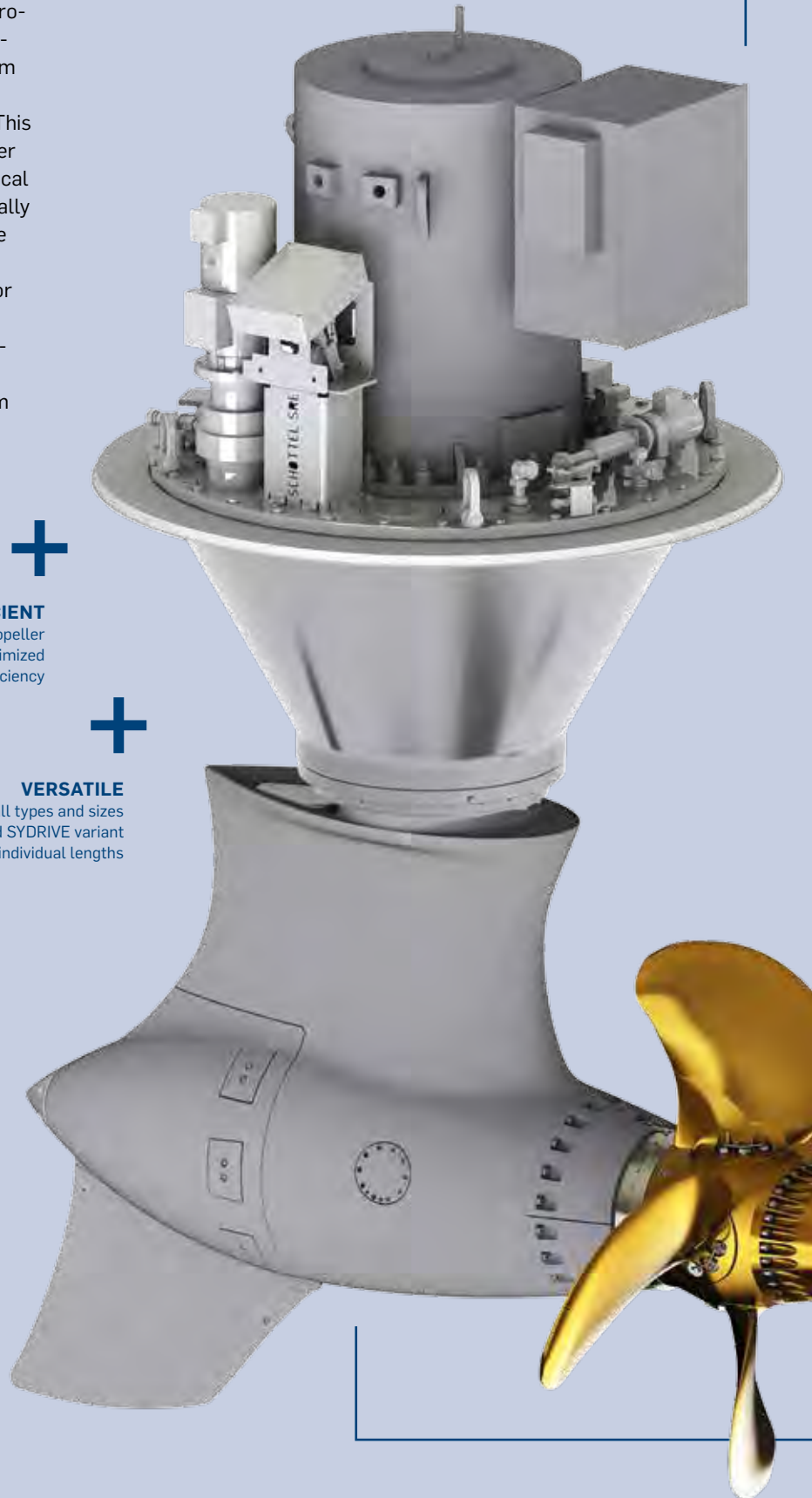
## COMPACT

Space-saving installation variant (LC variant) available  
→ More flexibility for ship designers  
→ More space for other equipment



## CLEAN

Fitted as standard with the patented LEACON sealing system, thereby ensuring a permanently safe and monitorable protective oil-water barrier





30+

SCHOTTEL Rudder EcoPellers have been in operation since the market launch



**FERRIES**

With its design-related minimized energy requirements, the SRE helps to meet local regulations for CO<sub>2</sub> emissions and energy consumption. The low energy requirements are the result of the high propulsion efficiency and course stability on frequently sinuous inshore routes and at berthing points.



**OFFSHORE VESSELS**

Also in the case of longer transit routes, the high efficiency and course stability of the SRE reduce operating costs. The outstanding DP performance, in particular, results from the high steering forces of the propulsion system.



**INSHORE TRANSPORT VESSELS**

Inshore transport vessels that have to manoeuvre independently (without the assistance of tugs) and quickly when in port or in heavy traffic benefit from the high steering force of the EcoPeller.



**YACHTS**

By dispensing with the gearbox in the L variant, and thus featuring lower noise and vibration levels, the SRE is ideally suited to the yachting sector, particularly with the compact LC variant. This opens up greater design freedom in the stern area for ship designers.



**MILITARY VESSELS**

The focus of military applications is on the low vibration level (L variant) and the hydrodynamic optimization of the propulsion system, which minimizes the underwater acoustic signature. The EcoPeller is also suitable for sudden manoeuvres at high speeds.



# SCHOTTEL ACADEMY NEWS

SCHOTTEL Academy seminars help customers upgrade their knowledge. Customer-focused trainings at training centres around the world as well as stationary and flexible trainings in customers' native languages, have led to increasing demand. Here is an update about the latest additions

## Training Portfolio

**NEW**



### CAPTAINS TO CAPTAINS

Professional captains instruct registered colleagues on board the customer's own ship in the handling of SCHOTTEL propulsion systems

**NEW**



### SPECIALIZED COURSES ON NAVAL OPERATIONS

Naval customer training at operational, intermediate and/or depot level (OLM, ILM, DLM) to enable crews to maintain thrusters independently



### BESTSELLER

Tailor-made customer training for mechanical and electrical engineers



### HIDDEN BASIC CHAMPION

Standardized seminars to provide general knowledge regarding products, installation, commissioning, operation, maintenance, adjustment, diagnosis and repair procedures

## Availability



- TRAINING CENTRES
- FLEXIBLE TRAINERS

### ACADEMY/TRAINING CENTRE SPAY, GERMANY

- + Classroom training for all common training topics and complete product range
- + Hands-on electrical, mechanical and hydraulic training on original equipment
- + Troubleshooting and fault finding exercises for engineers on a live system with extensive range of failure simulations and various electronic controls
- + 180° vessel-bridge-simulator with variety of vessel types

**Contact:** SCHOTTEL GmbH | Spay | academy@schottel.de

### TRAINING CENTRE HOUMA, USA

- + Classroom training for all common training topics and complete product range
- + Hands-on electrical and mechanical training on original equipment in the workshop

**Contact:** SCHOTTEL Inc. | Houma | info.service@schottel.com

### TRAINING CENTRE SINGAPORE

- + Classroom training for all common training topics and complete product range
- + Hands-on electrical and mechanical training on original equipment in the workshop

**Contact:** SCHOTTEL Far East | Singapore | info@schottel.com.sg

### TRAINING CENTRE FREMANTLE, AUSTRALIA

- + Classroom training for all common training topics and complete product range
- + Full mission engine control room training on original SCHOTTEL equipment
- + 360° vessel-bridge-simulator with variety of vessel types

**Contact:** SCHOTTEL Australia Pty | Fremantle | msghonem@schottel.com.au

### FLEXIBLE TRAINERS

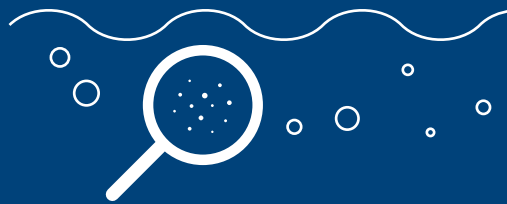
Flexible trainers with the latest knowledge are on call for onboard training at the customer's site

# 40 m

That is how high kelp forests can grow. These are underwater forests which are located along the cold water coasts of the world's oceans and serve as habitats for numerous marine animals. <sup>1\*</sup>

## 20 million tonnes:

That is how much gold is contained in seawater around the world. At just a few billionths of a gram per litre, however, the concentration is extremely small. <sup>2\*</sup>



## 10,000 years:

The Baltic Sea is a remnant of the last ice age and, as such, is only about 10,000 years old. It is thus the youngest sea in the world. <sup>3\*</sup>

## Rock rafts in the Pacific:

When volcanoes erupt under the ocean, the escaping lava forms huge pumice rafts. At first glance, these large rafts – some of which are over 100 km<sup>2</sup> in size – look like a landmass. While sailing yachts can easily avoid them, there is a risk of damage to the propulsion units of less manoeuvrable vessels. <sup>6\*</sup>

# 100 km<sup>2</sup>

## The largest waterfall in the world

is in the Atlantic Ocean – more precisely in the Denmark Strait between Greenland and Iceland. There, huge quantities of water plunge up to 4,000 metres into the depths. <sup>5\*</sup>

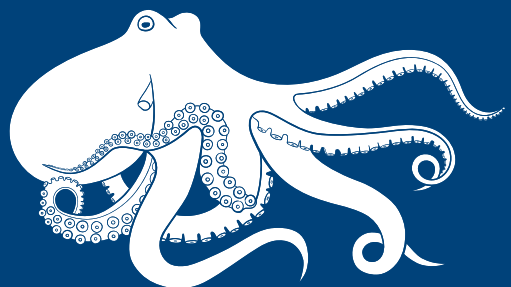


## Plastic packaging most common beach trash:

On International Coastal Cleanup Day 2019, activists collected garbage on beaches around the world. Most of the trash removed is food packaging or other disposable plastic products – these account for 7 out of the 10 most common items. <sup>7\*</sup>

## Master of disguise:

The mimic octopus can imitate up to 15 different animals. In doing so, this aquatic inhabitant of the Pacific and Indian Oceans deters its predators and ensures its own survival. <sup>4\*</sup>



Sources:

1\* [www.spektrum.de](http://www.spektrum.de); 2\* [www.forbes.com](http://www.forbes.com); 3\* [www.sciencenordic.com](http://www.sciencenordic.com); 4\* [www.nationalgeographic.com](http://www.nationalgeographic.com); 5\* [www.br.de](http://www.br.de); 6\* [www.bbc.com](http://www.bbc.com); 7\* [www.oceanconservancy.org](http://www.oceanconservancy.org)

# MASTHEAD

## YOU CAN FIND US HERE:

SCHOTTEL GmbH  
Mainzer Straße 99  
56322 Spay/Rhein  
Germany  
Phone: +49/26 28 61 0  
24 h Emergency Hotline:  
Phone: +49/26 28 61 800



## CLOSE CUSTOMER PROXIMITY AROUND THE WORLD:

### EUROPE

SCHOTTEL France  
Phone: +33/14 38 23 130  
SCHOTTEL Norway  
Phone: +47/63 82 00 00  
SCHOTTEL Netherlands  
Phone: +31/79 36 11 391  
SCHOTTEL Russia  
Phone: +7/81 25 78 50 68  
SCHOTTEL Turkey  
Phone: +90/216 482 1000

### AMERICAS

SCHOTTEL USA  
Phone: +1/98 53 46 83 02  
SCHOTTEL Canada  
Phone: +1/58 13 29 56 66  
SCHOTTEL Brazil  
Phone: +55/21 22 03 02 18  
SCHOTTEL Colombia  
Phone: +57/56 43 69 97

### MIDDLE EAST

SCHOTTEL Dubai  
Phone: +971/48 80 77 50

### ASIA PACIFIC

SCHOTTEL China  
Phone: +86/21 58 35 54 83  
SCHOTTEL Singapore  
Phone: +65/68 61 09 55  
SCHOTTEL Australia  
Phone: +61/8 93 35 19 31

## FOR FURTHER ADDRESSES:

### WWW.SCHOTTEL.COM

### PUBLISHER

SCHOTTEL GmbH  
Mainzer Strasse 99  
56322 Spay/Rhine  
Project Management  
(person responsible for  
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### AUTHORING, DESIGN & PRODUCTION

3st kommunikation GmbH  
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