



ENVIRONMENTAL TECHNOLOGY

Environmental technology or green technology or clean technology is the application of environmental science to conserve the natural environment and resources, and to curb the negative impacts of human activities on the environment. Sustainable development is the core of all environmental technologies. When applying sustainable development in order to address various environmental issues, the solutions should be socially equitable, economically viable, and environmentally sound.

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Featured Story



UTILIZATION OF WIND ENERGY THROUGH SAIL FOR SMALL FISHING BOAT

At the present situation, fluctuation of world economies strongly impacts the increasing trends of fuel oil price which constitutes the main operating cost for fishermen.

การใช้เรือใบในการทำประมงสำหรับประมงขนาดเล็ก เป็นอีกทางเลือกที่น่าสนใจในภาวะเศรษฐกิจตกต่ำ

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BIOCLEAN ECO

Living organisms such as shells and algae growing and adhering to bottom of ships tend to lower the speed, lower the fuel efficiency and eventually increase generation of CO₂.

สิ่งที่ช่วยลดการเกาะติดของเฟรียง หอยและสิ่งมีชีวิตในน้ำ เพื่อลดการสูญเสียพลังงาน และลดภาวะโลกร้อน

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AMC's 'GREENLINER' SLAMS ITS EXAMS

The Australian Maritime College's eco-friendly vessel the 'GreenLiner' has completed its most successful test to date with a 35 nautical mile journey along the Tamar River in Launceston, Tasmania.

วิทยาลัย Australian Maritime ประสบความสำเร็จในการสร้างเรือรักษ์สิ่งแวดล้อม "กรีนไลเนอร์"

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SOLAR POWER VESSEL

The solar technology was developed as alternative energy to alleviate environmental effect. An Australian company, Solar Sailor built the solar powered vessels.

บริษัทในประเทศออสเตรเลีย ได้คิดค้นประดิษฐ์เรือพลังงานแสงอาทิตย์ เป็นอีกหนึ่งทางเลือกที่น่าสนใจ

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What's TD

The Training Department of the Southeast Asian Fisheries Development Center (SEAFDEC/TD) was created by the SEAFDEC Council during its Inaugural Meeting in 1968 in Bangkok, Thailand and was formally established in 1970 with the objectives to develop modern fishery technologies for the better use of marine fish resources and to reduce manpower shortages in marine capture fisheries in Southeast Asia. SEAFDEC/TD is located in Amphoe Phrasamutchedi in Samut Prakan Province, Thailand.

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What's TD

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The Government of Thailand, according to the Agreement Establishing SEAFDEC, provides SEAFDEC/TD with office buildings and a dormitory to accommodate staff and trainees as well as other equipment and contributed toward the Department's operation. Among lists of donor governments, the Government of Japan is the most generous contributor towards the operation of the Department.

SEAFDEC/TD is headed by a Department Chief provided by the host government and a Deputy Department Chief provided by the Government of Japan. Dr. Siri Ekmaharaj is the present Department Chief of SEAFDEC/TD, with Mr. Hideki Tsubata as the Deputy Department Chief.

สำนักงานฝ่ายฝึกอบรม เป็น 1 ใน 4 ของสำนักงานฝ่ายเทคนิค ของศูนย์พัฒนาการประมง แห่งเอเชียตะวันออกเฉียงใต้ จัดตั้งขึ้นในปี 2511 โดยมีจุดประสงค์ เพื่อพัฒนาเทคโนโลยีทางการประมง ให้ทันสมัยสำหรับการใช้ประโยชน์ จากทรัพยากรสัตว์น้ำได้ดีขึ้น และลดปัญหาการขาดแคลนแรงงาน ทางการประมง ในภูมิภาคเอเชีย ตะวันออกเฉียงใต้ สำนักงานฝ่าย ฝึกอบรมตั้งอยู่ที่อำเภอพระสมุทร เจดีย์ จังหวัดสมุทรปราการ ภายใต้การเห็นพ้องของรัฐบาลไทยใน การจัดตั้งศูนย์ฝึกอบรม มีผู้อำนวยการ ซึ่งจะจัดหาโดยรัฐบาลไทย และ รองผู้อำนวยการจัดหาโดยรัฐบาล ญี่ปุ่น ในปัจจุบันมี ดร. สิริ เอกมหาราช เป็น ผู้อำนวยการ สำนักงานฯ และ Mr. Hideki Tsubata เป็นรองผู้อำนวยการสำนักงานฯ

ENVIRONMENTAL TECHNOLOGY

(continued from page 1)

Some environmental technologies that employ sustainable development include; recycling, water purification, sewage treatment, environmental remediation, flue gas treatment, solid waste management, and renewable energy. Some technologies directly support energy conservation while other technologies are emerging that could help in conserving the environment by reducing the amount of wastes produced by human activities. Energy sources such as solar power create less problems for the environment than the traditional sources of energy like coal and petroleum.

Scientists continue to search for clean energy alternatives to the current power production methods. Some technologies such as anaerobic digestion produce renewable energy from waste materials. The global reduction of greenhouse gases is dependent on the adoption of energy conservation technologies at industrial level as well as clean energy generation. This could include using unleaded gasoline, solar energy and alternative-fueled vehicles, including plug-in hybrid and hybrid electric vehicles.

เทคโนโลยีสีเขียว หรือเทคโนโลยีสะอาด เป็นเทคโนโลยีที่ไม่ส่งผลกระทบต่อสิ่งแวดล้อม ไม่ทำให้เกิดมลภาวะด้านต่างๆ ซึ่งจะก่อให้เกิดความยั่งยืนของสิ่งแวดล้อม เช่น เทคโนโลยีในการใช้แสงอาทิตย์ หรือพลังงานลมเพื่อทดแทนพลังงานน้ำมัน เป็นต้น ปัจจุบัน นักวิทยาศาสตร์ได้พยายามคิดค้นเทคโนโลยีสะอาดในการนำมาใช้ทดแทนพลังงานเดิมในชีวิตประจำวัน รวมทั้งเพื่อรักษาและอนุรักษ์สิ่งแวดล้อมให้ยั่งยืนต่อไปตราบนานเท่านาน

UTILIZATION OF WIND ENERGY THROUGH SAIL FOR SMALL FISHING BOAT (continued from page 1)

An approach to alleviate this issue is by using wind through auxiliary sail added onto small local fishing boats. The benefits of wind energy are not only free fuel and maintenance costs, but also free-pollution released into the atmosphere. The Southeast Asian Fisheries Development Center/Training Department (SEAFDEC/TD) perceives on this circumstance. Optimized sail shape was designed as inverse trapezium



for properties of propulsion efficiency, undisturbance of ship stability, and convenience in navigation. All components of the sail structure used local materials such as bamboo for mast and boom, and nylon for sail cloth. At one third from top of bamboo boom is bound with C ring to hook the brace line (Fig.1). At the end of the bottom boom is installed a small circle rope to bind with a circle rope on mast (Fig.2). Installation location of a bamboo mast should be one third of the ship length and 5 degree slope to maintain the ship stability (Fig.3). Suitable sail area is optimized and

calculated within limitation based on the formula of Sail Area = Length of water line of ship x Depth of water line of ship x 2.2 x (0.6 - 0.9). Because wind energy is utilized without any cost, fishermen, thus, use sail only one trip per operation, and they can reduce their fuel cost approximately by 20 -50 percent.

พลังงานลมสำหรับการทำประมงของเรือขนาดเล็ก

ปัจจุบันความผันผวนของราคาน้ำมันมีแนวโน้มไม่คงที่ ซึ่งส่งผลกระทบต่อโดยตรงต่อ ชาวประมง การใช้พลังงานทางเลือกใหม่เป็นสิ่งที่หลายฝ่ายได้พยายามคิดค้นและพัฒนาเพื่อ แก้ปัญหาวิกฤตดังกล่าว รวมทั้งเป็นการช่วยรักษาภาวะแวดล้อม ศูนย์พัฒนาการประมงแห่ง เอเชียตะวันออกเฉียงใต้ ได้นำประโยชน์จากพลังงานลมมาประยุกต์ใช้ในการทำประมงขนาดเล็ก เพื่อช่วยลดต้นทุนในการทำประมงของชาวประมง โดย ออกแบบวัสดุและขนาดของใบเรือ ให้มีประสิทธิภาพในการแล่นของเรือ ตลอดจนการควบคุม การใช้เรือใบในการทำประมงนี้จะ ทำให้ชาวประมงสามารถประหยัดต้นทุนจากค่าน้ำมันถึง 20-50%

BIOCLEAN ECO (continued from page 1)



To prevent such living organisms adhering to the ship bottoms, anti-fouling paints are being applied. In order to lower the negative impact to environment of anti-fouling paints, CHUGOKU MARINE PAINTS, LTD. (CMP) introduced new anti-fouling agents with high decomposition rate in sea water and low environmental load, and marketed tin-free antifouling paints. Also, CMP,

as a front runner, developed “BIOCLEAN”, a product without anti-fouling agent and achieved many satisfactory results from its application in sea water pipes of electric power plants or propeller of ships. Successful in introducing harmless anti-fouling ship bottom paint, “CMP BIOCLEAN” is a dream product with effective five years anti-fouling performance, and its application to large container ships or small ships for inland sea waters is actively promoted, eventually contributing to the improvement of the marine environment.

“BIOCLEAN” has “well-controlled low surface tension” and “smooth & flat surface”. It is like a surface of fish. It makes difficult for marine organisms to adhere to bottoms of ships and could also be easily released by ocean current or the vibration of waves, therefore BIOCLEAN maintains excellent condition of ships in the long term.

Source: www.cmp.co.jp/en/eco/pages_2008/social_environmental_2008_en_29.pdf

BIOCLEAN สีทาเรือชนิดใหม่



เรือที่ลอยอยู่ในน้ำนานๆ จะมีการเกาะติดของเพรียง หอยหรือสิ่งมีชีวิตขนาดเล็กในทะเล ที่บริเวณส่วนที่สัมผัสกับน้ำทะเลซึ่งส่งผลต่อเรือ ทำให้เกิดความเสียหาย รวมทั้งเป็นสาเหตุที่ทำให้ความเร็วในการเล่นเรือช้าลง ดังนั้น บริษัท CHUGOKU MARINE PAINT ประเทศญี่ปุ่น ได้คิดค้นพัฒนาสีที่มีประสิทธิภาพ สำหรับทาตัวเรือบริเวณที่สัมผัสกับน้ำทะเล ซึ่งสามารถช่วยลดการเกาะติดของหอยหรือเพรียงดังกล่าว อีกทั้งยังไม่มีสารที่ส่งผลกระทบต่อสิ่งแวดล้อมที่ชื่อว่า BIOCLEAN ขึ้น นอกจากนี้สีชนิดนี้ยังช่วยลดแรงดึงผิวระหว่างเรือกับผิวน้ำ ทำให้การเดินเรือมีประสิทธิภาพมากยิ่งขึ้น

AMC’s ‘GREENLINER’ SLAMS ITS EXAMS

(continued from page 1)

The battery-powered, solar-assisted, seven meters long ‘GreenLiner’ made the trip in less than eight hours, arriving at Home Point around 4pm after a 9am start from Beauty Point. Solar panels were not used to full potential as cloud cover, occasional rain and wind made the journey more challenging than hoped but the result was still worth celebrating. Creating interest in the Alternative Propulsion Challenge and the Alternative Propulsion and Powering Run was the main focus for the timing. The next step for the ‘GreenLiner’ is lighter lithium polymer batteries that could see the range extended as much as eight times. For further information contact: Australian Maritime College, Australia. www.amc.edu.au

Source: Work Boat World Vol. 27 No. 11 February 2009

เรือประหยัดพลังงาน “GREENLINER”

วิทยาลัย Australian Marine College ได้ประดิษฐ์เรือประหยัดพลังงาน “GREENLINER” ขึ้นสำเร็จ โดยเรือมีขนาดความยาวประมาณ 7 เมตร เป็นเรือที่แล่นด้วยพลังงานจากแสงอาทิตย์ ผลการทดลองแล่นเรือในแม่น้ำ พบว่า เรือดังกล่าวสามารถแล่นได้เป็นระยะทาง 35 นอร์ติกอลไมล์ โดยใช้เวลาไม่เกิน 8 ชม. อย่างไรก็ตาม การทดลองพบว่า การใช้พลังงานจากแสงอาทิตย์นี้ก็มีข้อจำกัด คือ ไม่สามารถใช้ได้ในวันที่มีเมฆมาก วันที่มีฝนและวันที่มีลมมาก ซึ่งทางวิทยาลัยฯ ก็จะดำเนินการพัฒนาเพื่อเพิ่ม ประสิทธิภาพของเรือ Greenliner ต่อไป



SOLAR POWER VESSEL

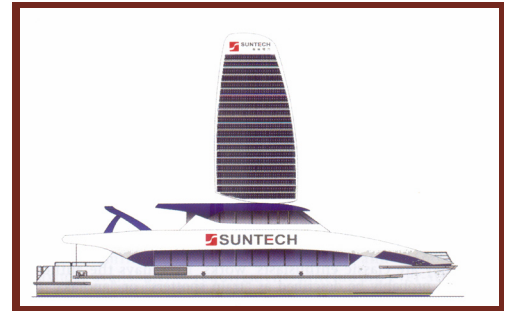
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Solar Sailor has confirmed orders for at least five new hybrid-powered passenger vessels from the world's most populous nations. One of these is for a company called Suntech Power Holdings which, as the name suggests, is a player in the broader solar power market. Its 31.5m aluminum catamaran will be featured at the Shanghai World Expo next year. It's no speed demon - 10 knots with generators running and six knots running on solar and wind power. The key there, though, is that that's six knots with no emissions.

Solar Sailor's other contract is, somewhat surprisingly, with the Hong Kong Jockey Club (HKJC) which is going to take four vessels for a ferry service that runs to a golf course (I am not making this up). These will be 24 meter low wash cats, with a maximum speed of 16 knots and six knots without emissions. It doesn't end there. Reports in the Australian media indicate that COSCO is also looking at placing solar wings on two of its large merchant ships.

They are not the only ones playing the game. During January, a German consortium commenced construction of what is claimed to be the biggest solar boat in the world. The project has been underway since 2006 (naturally I only just found out about it). So, even before Knierim Yachtbau in Kiel set to work on 'PlanetSailor', tank and wind tunnel testing had been completed. The vessel - another catamaran - is not being built for commercial purposes but rather to undertake a circumnavigation promoting solar energy beginning in 2010. The 30-metre craft will be covered with 470 square metres of photovoltaic solar panels and will circle the globe from east to west along an equatorial route.

Source: Work Boat World Vol. 27 No. 11 February 2009



เรือพลังงานแสงอาทิตย์

ประโยชน์จากพลังงานแสงอาทิตย์ได้ถูกพัฒนาและใช้เป็นพลังงานทางเลือกใหม่ เพื่อทดแทนพลังงานจากเชื้อเพลิงรวมทั้งบรรเทาปัญหาที่ส่งผลกระทบต่อสิ่งแวดล้อม บริษัทในประเทศออกเตรเลียได้ประดิษฐ์คิดค้นและสร้าง Solar Sailor ซึ่งแฝงพลังงานแสงอาทิตย์ที่ใช้กับเรือ แฝงดังกล่าวสามารถทำให้เรือแล่นได้ เป็น ระยะทาง 6-10 นอต ทั้งนี้จะขึ้นอยู่กับปัจจัยด้าน สภาพแวดล้อมต่างๆ ด้วย

CLEARING THE AIR IN PORTS

The air in ports is no longer thick with smoke and dust, but there is still pressure to make it even cleaner. The Hydrogen Hybrid Harbor Tug (HHHT) project is created and aimed at tackling the issue.

One method of improving air quality in ports is to force ships to 'cold iron' while alongside. However, that still leaves the issue of emissions while berthing. One way to limit that is to use tugs more for the berthing, limiting ship main engine use, and focus on the emissions from the tugs and other support craft in the port.

Dutch ports and cities live side by side and the Netherlands is proud of its role as the gateway to Europe. Perhaps because of that the Dutch are also very innovative when it comes to finding ways to reduce the environmental impact of port operations. They are the world leaders when it comes to tugs and tug technology, so it is no surprise that the Netherlands is the birthplace of the world's first near zero emission tug.

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GeoCod: GEOMATICS FOR THE SUSTAINABLE MANAGEMENT OF FISH STOCKS

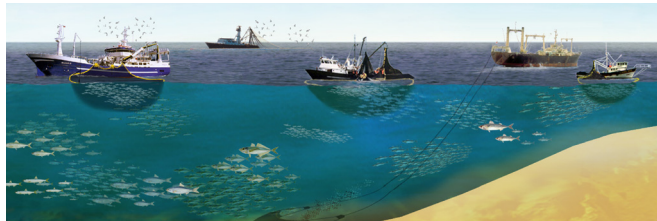
GeoCod: การประยุกต์ใช้ระบบจีโอมติกส์ เพื่อการจัดการประชากรสัตว์น้ำอย่างยั่งยืน

โครงการ GeoCod เป็นโครงการวิจัยในเขตตะวันตกเฉียงเหนือของมหาสมุทรแอตแลนติก โดย Memorial University ประเทศแคนาดา มีวัตถุประสงค์เพื่อพัฒนาระบบสารสนเทศภูมิศาสตร์ (GIS) และนำมาช่วยสนับสนุนการตัดสินใจในการวางแผนการจัดการด้านการประมงผ่านทางกรรवरรวม และวิเคราะห์ข้อมูลทางด้านสมุทรศาสตร์ (อุณหภูมิ ความเค็มและธาตุอาหารในทะเล) ข้อมูลทางด้านชีววิทยาของสัตว์น้ำและข้อมูลด้านการรับรู้ระยะไกล (Remote Sensing) เช่น อุณหภูมิผิวน้ำทะเล และอัตราผลผลิตชีวมวล โครงการนี้จะพัฒนาให้เกิดภาพรวมด้านความสัมพันธ์ระหว่างการกระจายตัวและความอุดมสมบูรณ์ของประชากรสัตว์น้ำ การเปลี่ยนแปลงของสิ่งแวดล้อม เป็นต้น

The GeoCod project is a research project spearheaded by Memorial University and cofunded by the Canadian GEOIDE Network of Centres of Excellence and the Canadian Center for Fisheries Innovations (CCFI). The project is focused on the North West Atlantic region of Canada. The objectives of GeoCOD is to develop a Geographical Information Systems based decision-support tool to provide fishery managers with comprehensive and accurate analysis of the changing marine ecosystems which could also help to develop new fisheries policies. The database compiled in the GeoCod project are include oceanographic data (temperature, salinity, and nutrients), biological data (fisheries scientific surveys, fisheries observer program information) for the four species [cod, capelin, shrimp, and crab], and remote sensing data (sea-surface temperature and biological productivity). The results from GeoCod are developed “big picture” of the recent distribution and abundance of fish stock and their relationship with fisheries and environmental changes. Having this big picture will improve the understanding of fish stocks dynamics and provide advice for more sustainable fisheries. It will be a powerful decision support tool that will contribute to the fight against declining fish stocks in the oceans.



Source: GeoCod - Research http://www.ucs.mun.ca/~rdeville/geocod/research_workshop_may-2007.html



NAVIGATE IN TOTAL DARKNESS



A thermal imager is a camera which is capable of detecting extremely small temperature differences. These temperature differences can be converted to a real-time video image. Displayed on a monitor this image is extremely suited for night vision applications. Thermal imagers are very effective in maritime environments.

They can detect objects floating in the water, shipping lane traffic, buoys, bridges, rocks, ... which can damage a ship or even worse, sink it. Even objects that can not be detected by radar become visible on a thermal image. Thermal images are also used for man overboard searches, threat detection and day time navigation.

FLIS Systems markets a full range of thermal imaging cameras for maritime applications. The Navigator-series are extremely affordable instruments. They are packaged for users who have night time navigation as their primary application. The Navigator is available in two different versions: fixed mounted and Pan/Tilt.

The top-of-the-line Voyager contains two thermal imaging and one daylight camera. Mounted on a gyro-stabilized Pan/Tilt, the Voyager will allow you to detect objects the size of a human being, over 1 km away.

Source: Work Boat World Vol. 27 No. 11 February 2009

WET SAND BLASTING TECHNOLOGY

As one of three blasting technologies, wet sand blasting technology is different in principle from the other two methods: Most devices are either classical dry blast cleaners where water is added in the jet nozzle or below the tank, or high pressure cleaners, where blast abrasive is added into the nozzle. In these cases the water forms a cone-shaped protective cover which should bind the dust and the blast abrasive.

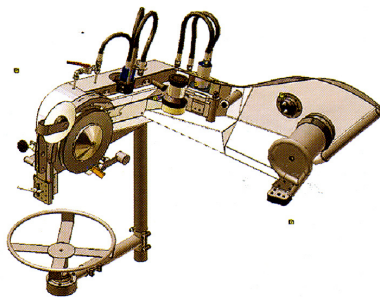
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SAVING TIME AND MONEY

According to fishermen, the Oilwind's new AutoLine System makes work easier and saves a lot of time and money. It is basically very simple and works well and things go faster and easier. This equipment is saves time onboard, as the system handles the release of the line and it is much easier to get the line in again than it was before. Furthermore, it does not pose the problem of lines getting tangled, so the whole process becomes much less problematic than before. When the fisherman set out 40 lines, it takes just under two hours' with a speed of 5-6 knots. When the line is hauled in again, he can manage 5-6 lines per hour and there are about 300 hooks

The Auto Line System is also much cleaner than the traditional way. It is a huge win, as even with many lines at once all the work can be done by one man onboard - also economising on space, as the boxes with lines can be easily stacked up. Perhaps the biggest difference is that we always use fresh bait because the fishermen don't have to use frozen bait anymore. So with Auto Line System they have the opportunity and potential to optimise fishing in all areas.



Source: www.worldfishing.net

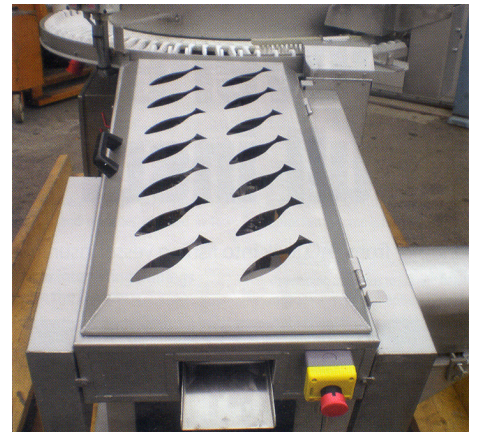
เทคโนโลยีเครื่องมือทำประมงที่ประหยัดทั้งเงินและเวลา

Oilwind Autoline System เป็นเครื่องมือช่วยในการทำประมงประเภทเบ็ดราวที่ได้มีการพัฒนาขึ้น เพื่อความสะดวกในการทำประมงเบ็ดราว อีกทั้งยังสามารถช่วยชาวประมงในการประหยัดเวลาและเงินในการทำประมงดังกล่าว เนื่องจากเครื่องมือนี้จะช่วยในการปล่อยเบ็ดราวและการกวดการพันกันของสายเบ็ดแต่ละตัว เครื่องมือชนิดนี้ชาวประมงสามารถปล่อยสายหลักของเบ็ดราวได้ 40 สายในระยะเวลาไม่ถึง สองชั่วโมงด้วยความเร็ว 5-6 น็อต และสำหรับการกวดเบ็ดราวสามารถกวดสายหลักได้ 5-6 สายต่อชั่วโมงซึ่งมีจำนวนตัวเบ็ดประมาณ 300 ตัว

NEW FILLETING MACHINE FOR SMALL FISH

Swedish fish processing machine manufacturer SEAC AB has designed a brand new filleting machine for very small fish - the SEAC FPM-300. During the last three years the company has been working with the aim of making it possible to fillet fish such as sardines, anchovy, vendace, red mullet and different mackerel species down to approximately 50 fish/kg. and with a capacity of up to 250 fish/min/4 operators.

By working 'step-by-step' out from SEAC's filleting machine, the ARENCO SFD-300, the company has been able to design a brand new filleting machine that can meet the new demand for filleting smaller fish. The first fish to be included in the project was the smaller sardine fished outside the Croatian coast. After installing three machines in the country SEAC gained more and more experience in filleting smaller fish. The next step was to be able to fillet the small fresh water fish vendace in north Sweden - this was a big success with high yield and nice looking fillets. From this fish the step to anchovy was not such a big one and after new tests in Croatia and one machine installed in Peru, this fish was also able to be filleted in the machine.



The SEAC FPM-300 will be able to fillet up to 250 fish/min and will do from approximately 28/30 fish per kg. down to approximately 45/50 fish per kg. with the special infeed table designed for very small fish. By changing other parts fish from approximately 6/8 per kg. and downwards can be filleted in the machine. The end product will be butterfly fillets with skin-on, as making single fillets in the machine will be too difficult due to the small size of the fish. If the customer demands single fillets without skin, this must be made manually. However on the bigger fish a special 'single fillet device' can be added to the machine.

Source: www.worldfishing.net

CLEARING THE AIR IN PORTS

(continued from page 4)

The Hydrogen Hybrid Harbor Tug (HHHT) project designed and built a very sophisticated, rugged and practical harbor tug. Regardless of the power plant, the HHHT will be a state-of-the-art 60 tonne bollard pull tug with the best efficiency and the best working environment around. To have a very good tug is fundamental. The hull design and the equipment and deck layout must be the most modern possible as real working vessels. These are going to be very special tugs down below the water, the very best on deck, and clean with it.

Green technology

Very much a working harbor craft, the HHHT will be as near to zero emission as current technology allows. When on stand by or moving to a job it will be zero emission, and it will only use diesels, and therefore create emissions, when actually performing a ship assist. Overall, the HHHT will achieve startling reductions in both pollutants and global warming emissions. These vessels will be taken into service in Amsterdam in 2010, and soon also be ordered for use in other port cities.

Although the novel feature of the HHHT is its ability to manoeuvre and deploy using battery and fuel cell power only, there has also been a lot of detailed focus on developing the most efficient diesel-electric power system for use when in assist mode.

The Proton Exchange Membrane (PEM) fuel cells, developed by Ned Stack fuel cell Technology BV of the Netherlands, deliver well to a propulsion efficiency of 34%. This is substantially better than the efficiency of conventional diesel direct drive installations. The fuel cells, in combination with batteries, are able to provide sufficient power to operate the tug during standby and mobilisation/demobilisation periods. 85% of the time, the tug is powered by the fuel cells and achieves zero emissions.

Flexible design

The HHHT's design is loosely based on that of a

simple harbor tug, and so looks conventional with a 30m hull, twin azimuth stern drives and a single winch delivering 60 tonne bollard pull.



It is fitted with

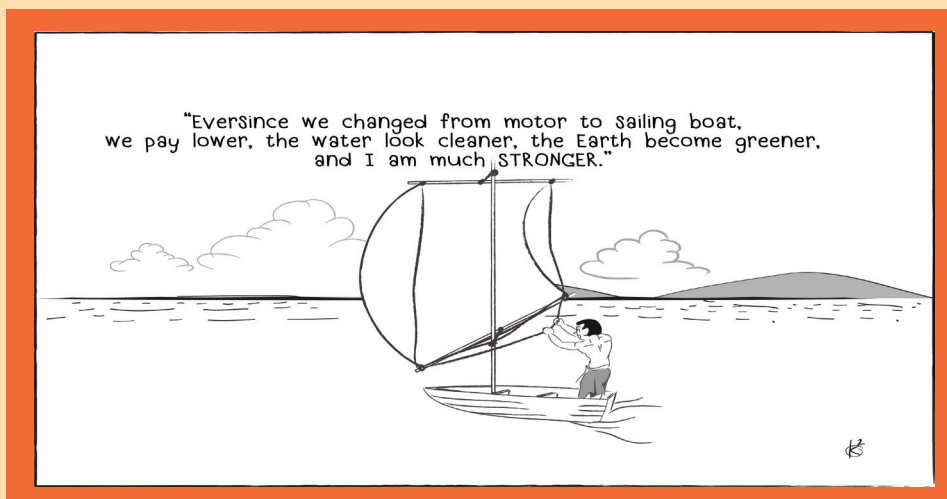
a 300kW inline Volt retractable bow propulsion unit to be used for mobilisation and demobilisation purposes operating on electric/hydrogen power. The azimuthing stern thrusters have the electric main movers installed directly on top of the thruster to minimise space used. That also permits an unusually flexible design layout in the tug for the diesel gensets and fuel cell packages.

Matching power demand to power source is the key way to cut diesel use. Diesel engines should ideally run as closely as possible to their optimal load conditions, which is an argument to look at diesel-electric solutions with a number of generator sets to obtain optimal loads and maximum flexibility.

Power savings

When the diesels are not needed for maximum thrust the vessel reverts to pure electric power. The vessel makes use of additional energy savings from power regenerating features by way of one of the propeller units when the tug acts in the dynamic braking or steering mode. Good batteries form a substantial part of the power supply package, able to charge up when load is light and move the tug when power is needed.

Source: Ship & Boat International. January/ February 2009



Upcoming Events

MAY

4-7: Offshore Technology Conference 2009

Houston, Texas
(www.otcnet.org/2009.org)

11-14: Oceans09 IEEE Bremen - Balancing Technology with Future Needs

Bremen, Germany
(www.oceans09ieeebremen.org)

11-15: World Ocean Conference 2009

Manado, North Sulawesi, Indonesia
(www.woc2009.org)

Fishing 2009

14-16: Glasglow Fishing 2009

SECC, Glasglow
(www.fishingexpo.co.uk)

27-29: Fish Expo Faroes

Tórshavn., The Faroe Island
(www.fex.fo)

June

2-4: Seafood Russia 2009

Mascow, Russia
(www.seafood-russia.ru)

16-18: EnergyOcean 2009

Rockport, Maine
(www.energyocean.com/2009)

MTS is a sponsor. Visit us at booth 202

16-18: Polfish, 10th International Fair of Fish Processing and Fish Products

Gdansk, Poland
(www.mtgsa.pl)

29-30: Marine Technology for Offshore Wind Power Workshop

Arlington, Virginia
(www.mtsociety.org)
(www.ildexindia.com)

July

2-4: ILDEX India 2009 (Aquaculture)

New Delhi, India
(www.ildexindia.com)

9-11: Work Boat China

Dalian, China
(www.baird-online.com)

18-20: India Fishing Expo 2009

Cochin, India
www.indianfishingexpo.com)

23-25: The 11th Japan International Seafood & Technology Expo

Tokyo International Exhibition Center, Tokyo
(www.exhibitiontech.com/seafood/SF11thBrochure.pdf)

August

14-17: Aquaculture Europe 2009

Trondheim, Norway
(www.easonline.org)

18-21: Aqua Nor 2009

Trondheim, Norway
(www.aqua-nor.com)

WET SAND BLASTING TECHNOLOGY (continued from page 5)

In this third method water is already added to the blast abrasive in the tank and operates throughout the process with an abrasive-water-mixture. With this technology, the genuine wet sand blasting as pressurized water is used to produce pressure and to blast abrasive out of the tank. The formation of extremely fine dust particles, which occurs with conventional dry blasting, is reduced by 95%. All kinds of cleaning jobs, from gentle to powerful can be performed using just this one type of machine. The compressed air, which together with the blast abrasive makes up the aggressiveness of the jet, is regulated independent of the quantity of blast abrasive or its conveyance. Whether it is burnt-in old paint coats on thin aluminum shutters, coated steel girders or big differences in height of up to 250 m that need to be dealt with, this technique can be used on almost every surface in every kind of weather and is already in use in over 40 countries in completely different climatic zones.

Active environmental protection included

With torbo, the blasting abrasive is mixed with water in the tank and delivered from the tank using water pressure. As a result, the water binds the dust before it leaves the blast nozzle. This is beneficial because the torbo reduces dust generation by up to 95%, thus protecting the environment, and the time-consuming and cost-intensive housing for the objects can usually be dispensed with. In Gentle Force wet sand blasting system, the technology achieves this virtually dust free surface preparation with no excess or free water to contain. This helps prevent exposure of workers to hazardous materials, because it leaves only the moist abrasive that can be easily cleaned up by traditional methods.

Source: Shipping software Trading FZC Ltd.

Special Thanks

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