



MARINA

The Quarterly Newsletter of
The Hong Kong Institute of Marine Technology and
The Hong Kong Joint Branch of The Royal Institution of Naval Architects
and The Institute of Marine Engineering, Science and Technology

IMaREST

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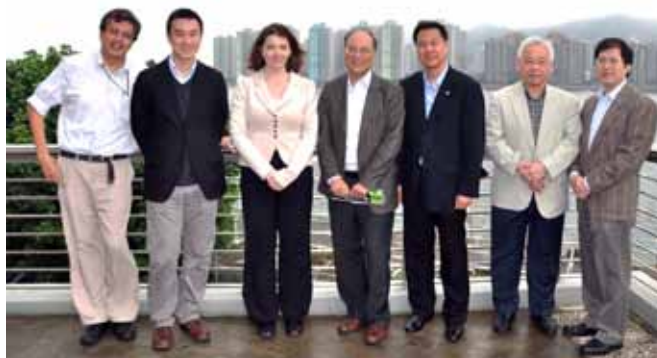
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HKJJB & HKIMT Activities

Visit of Marine Scientist to Hong Kong

“Marine Scientist” or “Marine Engineer”? Dr. Hannah Flint, a Chartered Marine Scientist who visited Hong Kong for the first time for the period from 25 – 28 March 2013. She is also the Manager for the ANZSPAC Division of the IMaREST. The purpose of her visit was to promote IMaREST and to seek collaboration/cooperation opportunities with the marine scientists and students in Hong Kong.

On 26 March 2013, she was accompanied by the immediate Past President of NEAD of IMaREST – Alan Tsang to visit the Division of Marine Science of The Hong Kong University of Science and Technology where they met Prof. W.X.Wang, Director of Costal Marine Laboratory of the Division of Life Science. They had a good initial discussion about the marine science activities in Hong Kong and after that Dr. Flint went to the lecture room and gave a presentation to about 30 research and undergraduate students on “The Technical Relevance of our Institute to Modern Day Marine Professionals”. This was the first dialogue between the marine scientist of our institute with the marine scientists and students in Hong Kong since the name changed in 2002. Hopefully the right message had conveyed to them and that they would maintain a link



After the Meeting at the CUHK Outside the Marine Science Laboratory

with us for future activities. A dinner gathering with some of the HKJJB committee members was arranged in the same evening, where she met the HKJJB Chairman, Hon. Treasurer and other committee members.

Another visit was arranged on 28 March, where Dr. Flint was accompanied by Alan Tsang and Louis Szeto, to the Simon F.S. Li Marine Science Laboratory of the Chinese University of Hong Kong. The meeting was arranged through Prof. K.H. CHU, Associate Head of the New Asia College and Director of the laboratory. There were three other professors from the School of Life Sciences joined the meeting, namely Prof. C.K. Wong, Prof. Put O. Ang and Prof. Jerome H.L. Hui. A general discussion on the current research activities of marine scientists in the CUHK was conducted before Dr. Flint gave her presentation. During the discussion, we had the impression that funding for the research activities was one of the key issues. Prof. Hui indicated that he agreed with the scope and objectives of



Dr. Flint's Presentation at HKUST

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Dr. Flint with HKJB Committee Members

IMarEST and expressed keen interest on internship for students as their School has about 200 undergraduates per year and with about 20 post-graduates working in the marine biology field. Interestingly to know through the discussion was that there is a “Marine Biological Association” in Hong Kong and it used to have approximately 400 members but the number dropped to about 60 due to the association being inactive in the past years. It was discussed that we should liaise with this group of marine scientists and work out the plan for re-activating more activities with them so as to arouse their interest in IMarEST.

Having established the initial dialogue with the marine scientists and students through the above visits, the IMarEST should develop a plan of mutual interest so as to establish further relationship and cooperation with them and at the same time enhancing membership in the marine science discipline.

Alan Tsang

My best friend Capt. Tommy PH Lam

When I was asked to write an article about Capt. Tommy PH Lam who passed away in early morning of 14 January 2013, I felt so honor to write some of his episodes that people might not have learnt about. Capt. Lam was so famous in his great contribution in the past ten years, but one may not realize how much time, efforts, love and care he offered to the young marine professionals in Hong Kong.

Capt. Lam was 73 years old when he left us from cancer. He told me that he went to sea in 1960 for about 15 years. He was promoted as a Captain in 1970. His experience at sea was interesting, brave and exciting that he experienced uncountable storms, fires on board and devastating shipwreck at sea. He retired from sea in 1974 and worked in shipping industry with different capacities. From 2002 when he was retired he committed himself in promoting and helping young people to work at sea in Hong Kong. He truly devoted himself to his profession and the shipping industry in Hong Kong.

In 2002 when the Maritime Professional Promotion Federation (MPPF) was founded, I was honored to meet Capt. PH Lam through Hong Kong Ship owners Association. We became best friends immediately because we shared the same interests and missions. He was so passionate to promote and help youngsters in Hong Kong to work at sea voluntarily.

Believe or not at that moment, it was truly the mission of impossible because there had basically been no young people in Hong Kong to work at sea for more than ten years. The only pre-sea training institute, Hong Kong Polytechnic, closed down the pre-sea training course in 1995. The course was then taken over by the Maritime Service Training Institute. The capacity of the Diploma course was 25 students, but normally recruited only about 15 to 20 students each year. Among them only few graduates decided to work at sea and they normally quitted in one or two years due to lacking of employment or, even they were employed, they would have given up due to lacking of attention and all sorts of other problems.

Almost all local shipping companies did not take cadets in Hong Kong but from countries with lower living standard. The shipping industry was deadly and quiet. We met all the same old faces all the time. Our Old boys Association monthly alumni gathering was boring with only about 5 regular attendees. The industry was indeed setting!

Capt. PH Lam spent a lot of time to visit every local shipping company to plea for berths. In order to secure perfect match, he interviewed every single student at least three times to ensure all the requirements of the company were reached. Since then many shipping companies such as Wah Kwong shipping, OOCL, China Navigation Ship Company, Patt Manfield,



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Late Capt. LAM & Capt. Marso LAW meet together within a marine function

Parakou shipping Ltd, Tai Chong Cheang Steamship company, Gold Beam Shipping and Anglo Eastern Ship management have been taking cadets in Hong Kong. Starting from zero, the average number of cadets working at sea is currently about 40 to 50 annually, including deck and engine departments. About 5 % of them are female deck and engineering officers. Recently, Ms. Carmen Chan acquired her master mariner certificate and became the first female captain in Hong Kong. Another female engineer is studying her chief engineering certificate and will soon become the first lady to achieve this qualification in Hong Kong.

The fundamental and crucial element to the success of our promotional program is hundred percent rate of employment. Owing to the enormous works and efforts Capt. Lam had made, totally of more than 230 young people in Hong Kong are working at sea or other shipping relating capacities. They include Marine

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Officer, Harbor pilot, surveyor, ship management, engineer, superintendence and etc.

Apart from arranging cadets to work in shipping company, he also mentored them from the bottom of his heart. He gained his respects from both students and shipping companies. He shared his experience with all local cadets, solved their problems around the clock if any. The benefits of students have always been the top priority in his heart. Few years back when he found students very difficult in passing the Certificate of competence examination, he discussed with me to secure students job security. The Ship Owners Association and MPPF organized the preparatory course leading to COC examination for them. We ran class 2 and 3 Preparatory course at the Hong Kong Seamen Union. The passing rate of students is much better and acceptable.

Without any rewards financially or physically, he helped students to apply discharge book from Marine Department, arranged students to attend supplementary short courses, answered every questions from students and their family, received all enquiry from shipping companies, contact shipping companies for berths etc. He was basically the God Father of all young shipping talents in Hong Kong.

Hong Kong Institute of Marine Technology together with HKJB have always been promoting and developing local cadets by organizing career talk at various universities and IVE technical college. In recent years, HKIMT and HKJB offered their assistance to the Maritime Professional Promotion Federation works in terms of organizing career talks, press conferences and career exhibitions. After the departure of Capt. Lam, Dr. SY Tsui and Mr. Albert Lo are helping to interview and mentor the local graduates to join the industry. More efforts and resources should be earmarked for the development of local marine professionals and engineers.

I strongly believe that Capt. Lam's works are rewarding. A group of very good, hard working, responsible and talented young marine professionals is growing up. The shipping industry in Hong Kong is becoming once again very vibrant and prosperous. We will continue his works and spirits in order to promote and develop more marine professionals in Hong Kong.

Capt. Marso LAW



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“Sea” Your Future

The Maritime Professional Promotion Federation (MPPF) and the Hong Kong Maritime Forum co-organized the press conference aboard the passenger vessel "Star Pisces" on 3rd January 2013. The theme of the press conference was "A successful maritime professional".

Late last year, a young lady from Hong Kong, Ms Carmen Chan, passed the examinations to become an ocean-going master mariner. Carmen was the first Hong Kong female deck officer to acquire this qualification. This news was extremely significant to the local shipping industry, and heralded the start of a new era.

Contemporary navigation has changed significantly in recent years. It is now safer, more advanced and even more professional. A career at sea carries favorable remuneration and excellent job prospects. In recent years, more females and more university graduates have entered the profession. Ms. Carmen Chan, a young deck officer, was the first Hong Kong female to be qualified as an ocean-going master mariner. Ms. Lilian Chan, a female engineer from Anglo-Eastern Shipping Management Company, was introduced to share her experiences as a female working in the engine room and the difficulties encountered.

Captain Lothair Lam graduated from the Faculty of Logistics at the Hong Kong Polytechnic University in 1998. After 6 years of service aboard seagoing vessels, he passed the examinations to become an ocean-going master mariner. Later, Capt. Lam worked onshore in the shipping industry. He was currently promoted as vice president of a major shipping company.

Carmen, Lilian and Lothair shared their experiences at sea and their expectations when they decided to pursue

a seagoing life. In addition, representatives of the Hong Kong Maritime Forum, shipping companies, the Maritime Services Training Institute, Nautical Institute (Hong Kong Branch), Hong Kong Institute of Marine Technology, HKJB and the Hong Kong Seamen's Union also discussed the attributes needed to become "a successful maritime professional".

Hong Kong is an international maritime centre and has long held prime status in the global maritime industry. Nevertheless, the problem of a shortage of maritime professionals is prevailing, which is also a concern encountered by other maritime jurisdictions. With a view to encouraging more youngsters to undertake a seafaring career, the MPPF, the Marine Department and the Hong Kong Seamen's Union have at different times introduced subsidy schemes to provide sponsorship to those who would like to pursue a career at sea. The beneficiaries can then work as cadets and receive onboard training. These subsidy schemes date back more than seven years. Several batches of the beneficiaries have already completed their two-year vocational training and some of them have acquired Certificates of Competency which enable them to work as deck and engineer officers.

There are good job prospects for those who complete their onboard training. Those who would like to find a permanent job at sea will never be disappointed as the employment rate is 100% and there is a worldwide shortage of qualified mariners. They can choose to work on seagoing or river-trade vessels, or take up posts in various disciplinary forces such as marine police, customs etc. Seafaring graduates are required to start their seafaring career by working as cadets.

Generally speaking, it takes about eight years for a navigating cadet to obtain a Master's certificate and for an engineering cadet to qualify as Chief Engineer. After that, there are many opportunities for seafarers to work ashore. They may take up management posts such as marine superintendents, ship surveyors, managers in shipping companies, managers in logistics companies, surveyors in classification societies, harbor pilots or container terminal managers. Alternatively, they may choose to further their studies and take up jobs in other maritime-related professions after acquiring the related professional qualifications. Examples of such professions include maritime arbitration, maritime law and marine insurance.



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The Maritime Professional Promotion Federation (MPPF) was formed by 13 maritime-related organizations including seafarers' unions in 2002. Members Association were Hong Kong Seamen Union, Merchant Navy Officers Guild, AUS, Nautical Institute Hong Kong Branch and Hong Kong Pilot Union. Their objectives are promoting the maritime industry, encouraging youngsters to consider a seafaring career and consolidating related education and training, with the ultimate view of nurturing maritime talent in order to maintain Hong Kong's status as an International Maritime Centre.

MPPF was a pioneer in sponsoring seafaring cadets. It initiated an Onboard Training Subsidy Scheme as early as 2002. Beneficiaries of this scheme who were dedicated to pursuing a career at sea received bursaries and got the opportunity to realize their dreams of working at sea. Subsequently, Marine Department, with strong support from the Maritime Industry Council, introduced the Sea-going Training Incentive Scheme in 2004 and increased the number of places for seafaring graduates. More and more youngsters who were interested in seafaring were able to benefit from these schemes. The Sea-going Training Incentive Scheme is of supreme importance to accomplishing the goal of encouraging young people to go to sea. The scheme enables cadets to cover their basic living costs while they are working at sea. Up to the present, a total of 231 deck and engineering cadets had been assisted by the scheme, which has been a great success.

Shipping is an international business, and the vast majority of cadets worldwide are from countries, where salaries are lower than Hong Kong. Although salaries are much more attractive when cadets qualify to be officers, there was little to entice Hong Kong youngsters to become cadets in the first place, since there were much more lucrative opportunities for graduates ashore.

MPPF decided to subsidise the training to make it a more attractive career choice, and the scheme was so successful that it was subsequently adopted by government.

Nowadays, working at sea is safe, technically advanced and professional. Remuneration and job prospects for qualified officers are attractive. Those who would like to take the challenge and become a future ship captain or chief engineer and have obtained Grade 2 in at least 5 subjects in the HKDSE Examination can enroll in the Higher Diploma in Maritime Studies course offered by the Vocational Training Council. Other related courses include those offered by the logistics faculty of Hong Kong Polytechnic University and mechanical engineering courses offered by the various universities. For details, please visit the website "www.seagoinghk.org".

Capt. Marso LAW

Experience sharing of engines replacement project in a catamaran

Background

In 1992-3, there were 16 numbers of high speed catamaran patrol boats delivered to Government Dockyard. After delivery of the boat in 1993, additional facilities such as air-conditioner and generator had been installed onboard which did increase the boat weight as well as overloaded by the main engines. In order to alleviate the overloading of the main engines and so the propeller size had been modified and changed to four blades but boat speed had been decreased to about 23%.

Specification of delivered condition

Boat maker: Etosha Holdings Pty Ltd. Trading.

Built in Australia.

Hull form: planing hull design catamaran

Material: aluminium hull and superstructure

Dimensions: length overall 9.9m, breath 4.2m

Loaded displacement: 10.668 tonnes

Main engines 2 x Caterpillar 3208TAH mechanical controlled diesel engine of maximum 280kW@2800rpm

Gearboxes 2 x Twin Disc MG5111V gear ratio 1.75:1

Shaft layout: Z - drive

Propellers: 2 x 584mm D x 762mm P x 3 blades

Maximum speed: 35 knots



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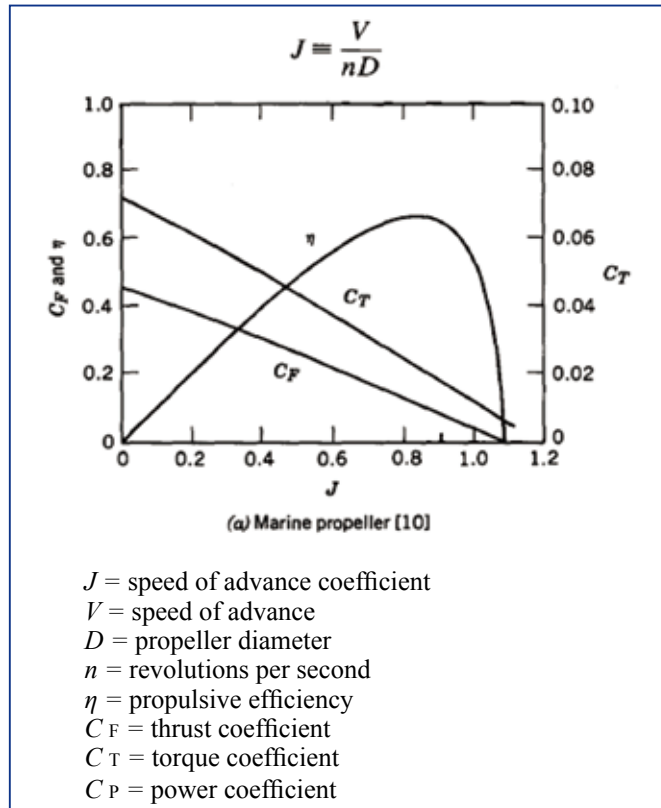
The revised boat specifications were as followings:

Loaded displacement: 11.068 tonnes

Propellers: 2 x 540mm D x 700mm P x 4 blades

Maximum speed: 27 knots

As the main engine maintenance and repairing costs for this fleet of patrol boats had been found not economical since 2005 after several years of service. Also, the engine model was obsoleted in the market by that time. Therefore an engine replacement project was kicked off in 2006.



New engine selection criteria

1) Physical aspects

It was of paramount concern on the size and weight of the new engine because the existing engine room space is limited and for planing hull design, weight on board as well as weight distribution are of prime concern.

2) Performance aspects

Engine power estimation of the following steps had been involved for the following 3 cases

Case 1: Original engine h.p. and original propeller size
Case 2: Revised propeller size due to increased load
Case 3: New engine replacement

i) Estimate propeller thrust force $F' = \frac{P_{useful}}{V(speed)}$

ii) Useful power (P_{useful}) can be found by using

$$\text{Propulsion efficiency } \eta = \frac{\text{Useful Power } (P_{useful})}{\text{Input Power } (P_{input})}$$

iii) Propulsion efficiency ' η ' can be found by using the typical experimentally measured propeller performance characteristic graph after finding the speed of advance coefficient ' J '

iv) $J = \frac{V}{nD}$ where V = vessel speed in m/s

n = propeller speed in rev/s

D = propeller diameter in m

Performance aspects estimation					
No.	Performance aspect items	Case 1	Case 2	Case 3	Remarks
		Original engine h.p. and original propeller size	Revised propeller size after adding air-condition & generator set	New engine replacement	
1	Speed of advance coefficient 'J'	0.5776	0.48	0.5776	
2	Propulsion efficiency ' η '	0.55	0.47	0.55	
3	Useful power (P_{useful})	308kW	263kW	341kW	
4	Input power (P_{input})	2x280kW = 560kW	2x280kW = 560kW	2x363kW = 726kW	
5	Estimated propeller thrust force 'F'	17.12kN	18.95kN	18.95kN	
6	Speed (knot)	35 knots	27 knots	35 knots	
7	Propeller size	2 x 584mm(D) x 762mm(p) – 3 blades	2 x 540mm(D) x 700mm(p) – 4 blades	2 x 584mm(D) x 762mm(p) – 3 blades	

From the above case 3 estimation therefore each new engine should have input power not less than 726kW/2 = 363kW to cater for the increased load. However



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the above estimation is mainly based on theoretical approach where errors might arise from rough hull surface, deformation of hull profile after years of service, etc. However re-engine exercise's focus was not on the performance of the boat, as long as new engine power is not less than existing input power 280kW in order to obtain the required speed (35 knots).

Selection result

After a market research, Caterpillar C7 electronic controlled diesel engine of 338kW@2800rpm standard model was selected.

The new engine met the physical aspects that its external dimension did fit the engine room space as well as the advanced technology development on electronic controlled of higher power engine but of 6% less by weight than the existing engine.

Since the new engine power increased by about 20%, auxiliary system of air supply, fuel system, sea water cooling system, exhaust pipe dimension and shaft system were also considered for necessary modification especially the engine flywheel damper which was redesigned by the engine maker to suit for the cardan shaft of the gearbox drive.

The performance of the boat was also estimated for using 338kW engines

$$\text{If new useful power } P_{\text{useful}}''' \\ = 2 \times 338 \times 0.47 = 317.72\text{kW}$$

$$\text{Boat speed } V''' \\ = 317.72 \div 18.95 = 16.77\text{m/s} = 32.6 \text{ knots}$$

Sea trial result

The re-engine project was completed in June 2008 with average sea trial speed of 30.2 knots at engine speed 2800rpm with original design propellers 584mm D x 762mm P x 3 blades of full load condition. The deviation is about 7% from estimation of 32.6 knots which was due to the engine full loaded condition during sea trial process.

And when the engine speed reached 2000rpm the hull started to plan and running steady at about 2500rpm.

Speed Comparison

	Case 1	Case 2	Case 3	Remarks
	Original	Propeller size revised after adding air-conditioner & generator set	New engine selection	
Engine Maker	Caterpillar	Caterpillar	Caterpillar	
Engine Model	3208TAH	3208TAH	C7	
Engines Power	2 x 280kW	2 x 280kW	2 x 338kW	
Propellers	2 x 584mm D x 762mm P x 3 blades	2 x 540mm D x 700mm P x 4 blades	2 x 584mm D x 762mm P x 3 blades	
Speed	35 knots	27 knots	30 knots	

Conclusion

- 1) The electronic controlled new engine replacement did offer a higher power to weight ratio characteristic. Also, electronic controlled engine provided higher emission and power characteristics than previous engine.
- 2) However, re-engine is not an economic option. The new engine price is 1.75 higher than the old without adjustment on present day value comparison and depreciation cost of existing engine.
- 3) Prior to re-engine project started, the boat has been serviced for 15 years. The life expectancy for the boat was limited.
- 4) Due to increase of engine power, air flow rate for engine combustion as well as for heat evacuation have been increased and so, the engine room temperature reaches at about 50°C.

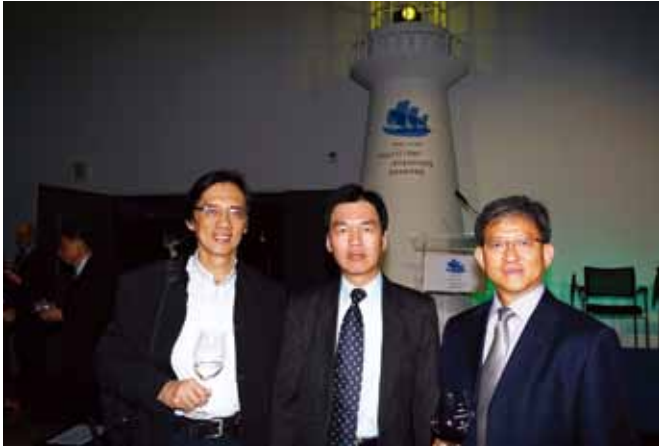
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Ir. CHAN Moon Chung

Re-opening of Hong Kong Maritime Museum

On February 26, 2013, HKIMT Chairman (Mr. TANG Kwong Fai) and HKJB honorary secretary (Mr. Ben Y.W. Lau) attended community celebration for the re-opening of Hong Kong Maritime Museum at Pier Eight in Central. The celebration served as a thank you from the museum to the local maritime community. The museum, founded in 2004, moved from the ground floor of historic Murray House in Stanley to its new four-deck waterfront location overlooking Victoria Harbour.



HKIMT chairman Ir. TANG Kwong Fai (left) and HKJB Hon. Sec. Mr. Ben LAU (right) with guest



HKIMT/HKJB committee members with other guests

The re-launch of museum has been made possible through a partnership between the Hong Kong Government and the companies and individuals in the shipping business. The new space is five times bigger than in Stanley. It consists of fifteen new galleries onto three well-organized levels. The museum instructs on shipping, ship technology, warfare, and trade of China, the rest of Asia and the Western countries. The museum also extends to more global topics and provides a comprehensive account of Hong Kong's growth and development as an international maritime centre.

The museum now open to the general public for a safe and trusted place where the visitors can spend quality time together.

Stanley Lui

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