



**1985 ANNUAL MEETING OF IHS**

**2 May 1985**

**Blackie's House of Beef  
22nd at M Streets, N.W.  
Washington, D.C.**

**Cocktails: 7 to 8 o'clock  
Dinner: 8 to 9 o'clock**

The International Hydrofoil Society (IHS) will be holding its annual meeting in conjunction with the annual meeting of the American Society of Naval Engineers (ASNE). Their annual meeting, which lasts two days, 2 and 3 May, is called ASNE Day 1985, and will be held at the Shoreham Hotel in Washington, D.C.

Our annual dinner and meeting of IHS will be held on Thursday evening, 2 May in the Caribbean Room of Blackie's House of Beef in Washington, D.C. You will have a choice of two entrees: beef (\$18) or scallops (\$15). (See the enclosed flyer for more details.)

There will be a business session immediately following dinner which will consist of summary reports from our respective committee chairmen, and a short acknowledgement from our new International Hydrofoil Society President.

In addition, we will have a guest speaker.

We hope that you will plan to attend and to support the International Hydrofoil Society. Our intentions are to make the IHS a very active, exciting, and worthwhile organization. Your help is needed in supporting these efforts.

**EXCITING NEWS!**

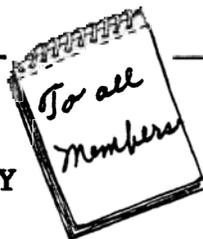
**WE'LL SOON BE ONE!**

The North American Association of The International Hydrofoil Society is merging with the parent International Hydrofoil Society!

At long last the reorganization will soon be taking place and plans are underway to simplify this process. See pages 2 and 3 for more information on the subject.

**WHAT'S INSIDE????**

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**NOTES FROM THE SECRETARY****REORGANIZATION OF THE INTERNATIONAL HYDROFOIL SOCIETY**

The governing body of the International Hydrofoil Society (IHS), the Council, has requested, in a letter of February 3, 1985 included in this newsletter, that the North American Association (NAA) assume the leadership of the Society. The NAA's Board of Directors unanimously accepted this request and is now studying the best means to accomplish this task.

The International Hydrofoil Society (IHS) is chartered under English law as a registered charity and, as such, is subject to certain rules and regulations regarding exemption from taxes. The North American Association is similarly incorporated in the state of New York as a not-for-profit technical society and also exempt from federal and state taxes at the present time. The Board of Directors considers it in the best interest of both the IHS and the NAA to preserve their legal identities and their tax exempt status. As a consequence, there are several issues of corporate and parliamentary law that must be carefully examined in effecting this merger.

As an interim measure, the NAA Board of Directors have taken the following steps:

The NAA Board of Directors shall constitute the Council of the combined Society,

Mme. Juanita Kalerghi, presently Chairman of Council, shall become a member of the combined Board/Council,

Mr. Ronald E. Adler, currently President of the NAA, shall become the Chairman of the combined Board/Council, and

Mr. Robert J. Johnston, recently elected by the Council to be the fifth President of the International Hydrofoil Society, shall retain that position.

There are a number of matters yet to be considered. The questions of whether revision of the NAA charter or the Bylaws will be necessary are probably the most pressing. However, should any such charter or bylaws revisions be proposed, they must be ratified by the membership, which now includes both sides of the Society.

Next, a word or two about assets of the Society. When originally created in 1970, the International Hydrofoil Society was composed of members from all over the world. Membership mostly came from Europe, Hong Kong, Australia and the United States and Canada. When the NAA was formed, the United States and Canadian members were transferred to the NAA's rolls. As new North American members joined the NAA, they were also considered members of both organizations. Under the operating rules established with the then Chairman of Council, Commander Mark Thornton, the NAA reserved half its annual dues for the parent Society with the understanding that both the treasuries of the NAA and the IHS would be available to each other. However, with the untimely passing of Commander Thornton, much of the activity of the International side of the Society began to wane and, for the past several years, dues were not solicited. The financial assets of the IHS have been kept in an interest bearing trust as have been the assets of the NAA. As matters now stand, control of all NAA/IHS financial assets now rests with the Board of Directors/Council. The primary objective for the conservation of these funds is as a reserve earmarked for the publication of the hydrofoil textbook, for which funds in excess of \$7000 are presently available.

**NOTES FROM THE SECRETARY (from page 2)**

Another asset inherited by the NAA in this transition is the IHS Library of several hundred hydrofoil related papers and documents. The library now resides in the custody of the Royal Institution of Naval Architects in London. Present plans are to ship the library to the United States for eventual inclusion in the David Taylor Model Basin's data bank.

Finally, the current international membership that includes Past Presidents Baron von Schertel, Leopoldo Rodriquez, David Liang and the later Peter Dorey, is an invaluable asset in itself. Each of the 80 or so members on the international rolls will be canvassed for their continued support of the new Society.

For the interest of our military members, the international mailing list DOES NOT include any Soviet or Soviet-bloc countries. Copies of the membership lists are available for members only. Contact the Secretary.

The membership will be kept informed as the reorganization of the Society continues.

John W. King  
Secretary/Treasurer

**COMMANDS at PHMRON TWO**

Current Commodore of PHMRON TWO is Captain James B. McKinney, who relieved Captain Frank G. Horn 18 August 1984. Subordinate commands of COMPHMRON TWO are:

CO, USS PEGASUS (PHM-1)	CDR Drew Beasley
CO, USS HERCULES (PHM-2)	LCDR Jeffrey Hutchison
CO, USS TAURUS (PHM-3)	CDR Richard Moore, Jr.
CO, USS AQUILA (PHM-4)	LCDR Thomas Hartrick
CO, USS ARIES (PHM-5)	LCDR Douglas Keith
CO, USS GEMINI (PHM-6)	CDR Steve Sitler
OIC, PHMRON TWO Mobile Logistics Support Group	LCDR J. D. Lose

Commanders Beasley and Sitler were recently promoted to full commanders.

Captain Horn had assumed duties as COMPHMRON TWO on 30 April 1982 and is now Commanding Officer of the YOSEMITE (AD 19). Captain McKinney was formerly Assistant Chief of Staff for Operations and Plans on the Staff of COMNAVSURFLANT.



**CAPT ROBERT J. JOHNSTON, USN (RET.) APPOINTED  
PRESIDENT OF THE INTERNATIONAL HYDROFOIL SOCIETY**

The following two letters, the first dated 3 Feb 1985 from the Chairman of the Council, Juanita Kalerghi, of the International Hydrofoil Society and the response from Robert J. Johnston dated 13 Mar 1985 are self explanatory.

By copies of this newsletter all members of the International Hydrofoil Society are being asked to affirm their membership. At the same time new members are being solicited. Elsewhere in this newsletter it is noted that over 50 companies are operating hydrofoils in addition to the naval applications. It is the goal of your new president to make your society of interest to hydrofoilers throughout the world. The aim will be to have all builders and operators, designers and promoters of hydrofoils, past, present, and future active members of IHS. To accomplish these objectives frequent issues of the newsletter will be sent to all members. In addition, a second International Hydrofoil Society Conference will be organized. All members are solicited to contact the new president and council with suggestions, criticisms or material for the newsletter.



**THE INTERNATIONAL HYDROFOIL SOCIETY**

51 Welbeck Street  
London W1M 7HE

Telephone: 01-935 9274

Captain Robert J. Johnston USNR (Ret)  
9421 Chatteroy Place  
Gaithersburg  
Maryland 20879 U.S.A.

3th February 1985

Dear Captain Johnston:

It is with great pleasure that the Council of the International Hydrofoil Society announces your appointment as the President of the International Hydrofoil Society.

Your dedication to the aims and goals of the Society, along with the efforts of you and your North American colleagues to formulate the North American Association have been the basis of our selection for you to become the Fifth President of the International Hydrofoil Society.

Our first request to you as President is to undertake the transfer of the management responsibilities of the International Hydrofoil Society from London to North America. This would require the formation of a new governing Council to govern our society's activities, and to conduct an annual council meeting. With the formation of a new council, the assets of IHS would be transferred to the North American Association of IHS. Our only request is that an international aspect be retained in the formation of a new council. We stand ready to assist you in any way possible in affecting this transfer.

Our congratulations on your appointment as President and our best wishes for the continued success and growth of the International Hydrofoil Society.

With kindest personal regards  
Sincerely

*Juanita Kalerghi*  
Juanita Kalerghi  
(Chairman of Council)



THE INTERNATIONAL HYDROFOIL SOCIETY  
North American Association • Post Office Box 2100 • Gaithersburg, Maryland 20879

March 13, 1985

Ms. Juanita Kalerghi  
Chairman of the Council  
The International Hydrofoil Society  
Flat 3, Avondale House  
Wellington Square  
Cheltenham, Glos.  
GL504JS  
England

Dear Ms. Kalerghi:

With great humility and a feeling of pride I accept the honor and challenge that the council of the International Hydrofoil Society has bestowed on me. I hereby accept the appointment as the Fifth President of the International Hydrofoil Society. My appreciation is expressed to all members of the Council.

In response to the Councils' request that as the new President I undertake the transfer of the management responsibilities of the International Hydrofoil Society from London to North America I wish to report the following:

At a meeting of the Board of Directors of the North American Association of the International Hydrofoil Society the Board voted to support the move and to assist in making the transition. As such the Board agreed to become an Interim Council of the International Society until such time as a permanent Council with a more international membership can be arranged. The Board and I request that you remain a member of the Council at least during this interim period. Mr. Ronald E. Adler, who is the President of the North American Association has accepted the chairmanship of the Interim Council. Capt. John W. King Jr. USN (Ret.) has accepted the responsibility of Secretary/Treasurer of the Interim Council. Therefore, matters of an administrative nature can be addressed to Mr. Adler or myself and those of a financial matter to Capt. King.

Our first order of business as an Interim Council will be to contact all members of the Society to advise them of the transfer and to request their membership affirmation.

Regarding the Society's library, that may be shipped to:

Capt. John W. King Jr. U.S.N. (Ret)  
4313 Granada Street  
Alexandria, Virginia 22309

It is the Councils' intention that the library will be intergrated into the Advance Ship Data Bank of the U.S. Navy where it will be catalogued and filed. The members of the Society will be informed as to how the Data Bank can be queried when the integration has taken place.

All other correspondence to the International Hydrofoil Society can be addressed to:

Post Office Box 2100  
Gaithersburg, Maryland 20879

We shall keep you advised as further progress is made in this Council transfer. In the meantime, you have the assurance of the Interim Council and me that we shall do all we can to maintain a vigorous International Society that is of interest and benefit to all its members.

Sincerely yours,

  
Robert G. Johnston  
President,  
The International Hydrofoil Society

**HIGHPOINT PCH-1**

HIGHPOINT (PCH-1) for many years served as a U.S. Navy full-scale test and trials hydrofoil while operating out of the Hydrofoil Special Trials Unit (HYSTU), Puget Sound Naval Shipyard (PSNS), Bremerton, WA. The DTNSRDC owned workhorse has become another casualty of the significantly reduced advanced naval vehicles R&D funding allocations these past few years. The CNM was notified by OP 98 to stand down PCH-1 on 29 Sep 1984 and inactivate her on 30 Sep 1984. Inactivation was deferred to 1 Dec 1984 by OP 98 to permit negotiation with Boeing Marine Systems for leasing HIGHPOINT.

On 22 Jan 1985, a ceremony was held at PSNS honoring the establishment of DTNSRDC's new Puget Sound Detachment, combining HYSTU (now the Hydrofoil Trials Group) and the Ship Silencing Evaluation Division. The following day, on the foredeck of HIGHPOINT, DTNSRDC's Captain Garretson turned the key to PCH-1 over to Richard Crowley, vice president for engineering, Boeing Marine Systems. The 21-year old hydrofoil will henceforth be operated by Boeing for the Navy.



The current IHS/NAA Officers and Board of Directors are:

**OFFICERS 1984-1985**

President	Ron Adler
Vice President	Ray Hoop
Secretary/Treasurer	John King
Recording Secretary	Patsy Jackson

**BOARD OF DIRECTORS**

<u>1982-85</u>	<u>1983-86</u>	<u>1984-87</u>
Ron Adler	Bob Ripley	Bill Ellsworth
Ray Hoop	Jim Schuler	Bob Johnston
John King	Bill Stolgitis	Ron McWilliams
Lou Tedeschi	Jim Wilkins	Don Wight

**NEWS . . . from**

**BOEING MARINE SYSTEMS (Seattle)**

**BOEING SELLS JETFOIL FOR MARINE RESEARCH**

On 10 January 1985, Island Research and Development Corporation of Victoria, British Columbia, announced the purchase of a Boeing Marine Systems JETFOIL hydrofoil for use in marine research tasks. The approximate value of the sale is \$24 million. JETFOIL is Boeing's trademark name for their computerized hydrofoil.

The JETFOIL, scheduled for delivery in June 1985, will be used for the extension of conventional research into various aspects of oceanography, pollution control, bottom mapping, bottom material classification and geophysical measurement for clients of IRDC. High speed acoustic data gathering techniques will also be pursued for various governmental clients.

The JETFOIL is considered an ideal platform for oceanographic research tasks because of its high speed and ability to operate comfortably in rough water. The Boeing JETFOIL features a fully-submerged foil, automatic computer control and waterjet propulsion.

IRDC plans to outfit the JETFOIL with research test equipment following delivery next year. Operating and maintenance crews for the Victoria-based research vessel will be provided by Island Jetfoil Corporation. This is the first sale of a JETFOIL for research purposes.

**USS PEGASUS LEAVES YARD**

USS PEGASUS has just completed SRA at Jacksonville, Florida and is returning to PHMRON TWO at Key West, Florida on 10 April 1985. PHM-3 departs Key West, Florida this month to enter her SRAs during which the first Sperry-built production HYCATS with the AN/UYS-44 computer will be installed.



SUPPORT  
YOUR  
SOCIETY

**STUDY OF HIGH SPEED WATERBORNE  
TRANSPORTATION COMPLETED**

The worldwide study of high speed waterborne transportation conducted by the Urban Mass Transportation Administration (UMTA) of the U.S. Department of Transportation was completed with the submission of the Report to Congress in September 1984. Assisting UMTA in the conduct of this study was Advanced Marine Systems Associates, Inc. and their subcontractor Peat, Marwick, Mitchell & Co. The results of the study are contained in seven volumes as listed below:

"Report to Congress" which presents an overview of the study and the significant findings. Report No. UMTA-IT-32-0001-84-1.

"Bibliography" listing the pertinent literature available and used in the study. Report No. UMTA-IT-32-0001-84-2.

"Existing and Former High Speed Waterborne Passenger Transportation Operations in the United States" which is a description with analysis of these operations. Report No. UMTA-IT-32-0001-84-3.

"A Review of Selected High Speed Waterborne Operations Worldwide" which cover the existing operations analyzed in the study.

"An Assessment of High Speed Waterborne Vessels and Their Builders" which reviews the vessels included in the study. Report No. UMTA-IT-32-0001-5.

"An Assessment of the Potential for High Speed Waterborne Passenger Services in Selected United States Sites" whose title is self-explanatory. Report No. UMTA-IT-32-0001-6.

"A Guide for Implementing High Speed Waterborne Passenger Transportation Services" which is a cookbook for analyzing potential sites and related, usable vehicles for profitability. Report No. UMTA-IT-32-0001-7.

Copies of these reports may be obtained by writing to:

U.S. Department of Commerce  
National Technical Information Service  
5285 Port Royal Road  
Springfield, Virginia 22161



**PEOPLE IN THE NEWS**

**James L. Schuler**, SEA 05R21, retired 1 March 1985, capping service with the Navy initiated with enlistment in the Navy U-12 program, March 1944. Jim's career included employment with Tacoma Boat and The Boeing Company before joining the Bureau of Ships, August 1950, in the Preliminary Design Branch. He is a graduate of Webb Institute and George Washington University School of Law. Mr. Schuler is now with Engineering & Scientist Associates, Inc., Rockville, Maryland.

**Captain Lorrin F. Thurston**, an IHS life member, is now Vice President, Marine Operations of Island Jetfoil Corporation, Seattle, Washington, which is scheduled to operate jetfoils across the Strait of Juan de Fuca and Strait of Georgia between Seattle and B.C. See separate announcement in this newsletter.

**Juanita Kalerghi**, for many years Editor of High-Speed Surface Craft (formerly Hovering Craft and Hydrofoils) and founder of Kalerghi Publications, has moved from London, England to the Cotswolds. She will still serve as a member of the IHS Council.

**Patsy N. Jackson** was elected recording secretary, a new position, of the IHS by the Board of Directors/Council Members. Patsy has performed this function for several years and has been a major contributor to the success of our Society dinners and meetings (Nova Scotia, New Orleans, and Washington, D.C.). She is also publishing editor of our newsletter.

**Vern Salisbury**, for many years chief, Ship Systems Test at Boeing Marine Systems, has recently. Vern was directly involved with testing many of the U.S. hydrofoils: FRESH-1, PCH-1, PGH-2, AGEH-1, and PHMs. He also prepared a PHM Notebook, a compendium of PHM operating information for PHM operating personnel. Vern is now working with the Seattle Aerospace and Marine Museum in reconstruction of an F4U Corsair (WW II Navy fighter plane). He would like the IHS to provide inputs for underwater winged vehicles (hydrofoils) to him for the museum. Any ideas? Contact Vern Salisbury at 9620 N.E. 26th Street, Bellevue, Washington 98004; John King at (703) 892-9040, or mail to the IHS at P. O. Box 2100, Gaithersburg, MD 20879 USA.

## 15 YEARS OF HYDROFOIL OPERATIONS

In May 1984 the Red Funnel Line of Southampton, England completed 15 years as a hydrofoil ferry operator. During this period over three million passengers have been carried. Service is provided between Southampton and West Cowes on the Isle of Wight.

Red Funnel has been servicing the Southampton to Cowes route for many years. In 1969 in order to compete with hovercraft competition, two Seaflight H.57 hydrofoils were ordered from Italy. In 1972 due to the poor reliability of H.57s, they were replaced with Rodriquez Cantiere Navale's RHS-70s. Currently Red Funnel has a fleet of four RHS-70s.

Red Funnel also operates conventional car and passenger ferries. These ferries carry 800 people and a maximum of 80 cars. Crossing time from Southampton to West Cowes is 55 minutes on the conventional ferry compared with 23 minutes on the hydrofoils. Consequently, the hydrofoil fare is about 42% higher than for the car carrying ferries. A steady growth of passenger traffic has resulted during the years of hydrofoil operations.



## PHT TEXTBOOK PROGRESSING

Most of the chapters received from the authors of the "Principles of Hydrofoil Technology (PHT)" textbook have been entered on a text-editing computer at Applied Technology Corporation (ATC). There are some missing chapters, however, and authors are needed to prepare them. Messrs. Bob Johnston and Jim Schuler of the Society have volunteered to technically edit the material prepared by the authors and to assist Mr. Dennis Clark, Chairman of the PHT effort, in getting the book published. While there is no firm date for publication, the Society's Board of Directors is firmly behind the project and believes that the PHT will be a significant contribution to the hydrofoil community at large.

## ADVANCED SHIP DATA BANK

The Advanced Ship Data Bank (ASDB) at DTNSRDC has fallen on hard times. Established in 1972 by the DTNSRDC Ship Development Department (SDD), the ASDB proved to be an excellent storage and retrieval system in support of the advanced naval vehicles initiatives at that time which led to the PHM, LCAC and other alternate hull form concept developments. Severe limitations in advanced ship/craft R&D funding the past few years has had a devastating effect on the ASDB operation. Concurrently, the SDD was reorganized and designated as the System Integration Department (SID). The new department embraces not only advanced naval vehicles, but monohulls, submarines, survivability/vulnerability, and costing and design tool development, with requirements for additional office space.

The SSN 21 design team was moved to DTNSRDC, pre-empting ASDB space. The ASDB was relocated to the SID support contractor (MAR, Inc.) facility in Rockville, MD, where it now resides. Because of limited funding, only data searches can now be conducted and new documentation cannot be entered into the ASDB. Although the SSN 21 design team has since departed DTNSRDC, current plans call for the ASDB to relocate to a trailer across from Building 19.

At this time there is insufficient funding to bring the ASDB back to full service operation.

## THREE RHS-160F FOR AUSTRALIA

In August 1984 the first of three new Rodriquez Cantiere Navale RHS-160F hydrofoils entered service with the Urban Transit Authority of New South Wales. The second RHS-160F is due to enter service this spring. The third RHS-160F is being built under license at the Carrington Slipways PTY LTD in Tomago, Australia. The RHS-160Fs are replacing the operator's five PT-50s the first of which entered service in 1966. The Urban Transit Authority of New South Wales uses these hydrofoils to service the Sydney to Manly route.

**OVER 50  
HYDROFOIL OPERATING COMPANIES**

The October 1984 issue of "High Speed Surface Craft" list and names over 50 companies operating hydrofoils. The count does not include the Soviet Union which may have hydrofoils on more than 150 routes. This information is contained in an article entitled, "World's Fast Ferry Directory" which lists operations of all types of high speed ferries.



**NEW RHS-160F HYDROFOILS**

At the Ninth International Marine Transit Conference held in New York, New York October 2 to 4, 1984, Riccardo Rodriguez, managing director of Rodriquez Cantiere Navale explained the improvements of the RHS-160F model on the RHS-160. The 160F has a larger hull increasing the seating capacity. It is also faster and has a better fuel economy.

A comparison of the characteristics of the 160F with the 160 follows:

	RHS-160F	RHS-160
Length overall	31.2m	30.95
Moulded beam	6.70m	6.20m
Width across foils	12.60m	12.60m
Draft		
Hullborne	3.76m	3.70m
Foilborne	1.45m	1.35m
Displacement	90 tons	85 tons
Engines (2)	MTU 16V 396TB83	MTU 12V 652TB71
Max hp	2,020 @ 2000 rpm	1,950 @ 1460 rpm
Cruising speed	36 knots	35 knots
Cruising range	200 nm	200 nm
Passengers	180-210	160-200

As mentioned elsewhere in this newsletter, the first two RHS-160Fs are being delivered to the Urban Transit Authority of New South Wales, of Australia. The third RHS-160F is going to Candor Ltd. for the Channel Islands.

**ASNE SPECIAL EDITION ON  
MODERN SHIPS AND CRAFT**

In February 1985, the American Society of Naval Engineers published a SPECIAL EDITION of the Naval Engineers Journal on Modern Ships and Craft. This special edition has chapters on modern monohulls, SWATH, planing craft, hydrofoils, surface effect ships, and air cushion craft. A number of members of IHS were contributors to this special edition.

Bill Ellsworth was the Chairman of the editorial committee; Jim Schuler was the editor for a chapter entitled "View from the Bridge," Patricia Cass, Mike Eames and CAPT Karl Duff each presented their viewpoint from the bridge of modern ships; and Bob Johnston was the editor for the chapter on hydrofoils. Copies may be obtained by writing:

The American Society of Naval  
Engineers, Inc. (ASNE)  
1452 Duke Street  
Alexandria, VA 22314

The price for a single copy is \$15.00 in the United States and its possessions, and Canada. For all other countries, the price is \$17.00. A hard cover copy is available at \$25.00. Make checks, drafts, and postal money orders payable to ASNE, Inc.

**NEW CHANNEL ISLAND HYDROFOIL**

A new Rodriquez Cantiere Navale design, RHS-160F, is scheduled to go into service this spring with Condor Ltd. Condor Ltd. services the Channel Island and connects to St. Malo on the French coast. This new hydrofoil will supplement the RHS-140 and the RHS-160 currently in their inventory.



*'I have a feeling you don't agree.*

**BOEING JETFOIL SERVICE**

**. . TO CANADA (set for 1985)**

"The Spirit of Friendship," a Boeing Model 929-115 JETFOIL hydrofoil, was launched January 7, 1985, by Boeing Marine Systems for its new owners, Island Jetfoil Corporation (IJC) and christened by the wives of Dr. Vinnels, and the American President of the company, Robin Little.

Dr. C. Stewart Vinnels, chairman of the Seattle-based IJC, announced that beginning April 19, 1985, "The Spirit of Friendship" will provide up to 240 passengers with JETFOIL service between Seattle, Victoria, and Vancouver, British Columbia. The ship will fly two round trips between Seattle and Victoria, and one round trip between Victoria and Vancouver daily. The "Spirit of Friendship" is capable of cruising speeds up to 50 mph, and will complete each leg of its tri-city run in two hours or less.

A fare schedule of rates and service times has been published by Island Jetfoil Corporation. The company is currently issuing tickets and has established a toll free phone number for reservations. Throughout North America, this reservation number is 1-800-663-7575. Tickets are also available through local travel agents.

Terminal facilities in each of the three cities have been secured. Terminals are located at Pier 69 on Alaskan Way in Seattle, Victoria's Inner Harbour on Belleville Street, and the Sea-Bus Terminal at the foot of Granville Street in Vancouver.

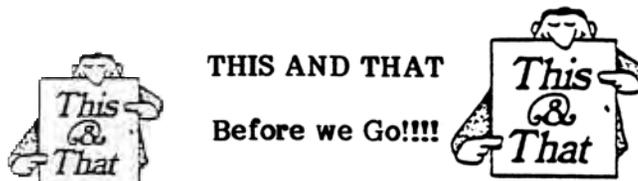
**. TO ALASKA (currently)**

A Boeing jetfoil is currently being demonstrated in the Southeast Passage of Alaska, offering service between Juneau and six other Alaskan communities. The demonstration is an evaluation by Alaskan Marine Highways toward the purchase of Jetfoils to supplement their present ferry system by offering fast and efficient feeder service to smaller communities. The Alaskan demonstration ends on Labor Day, according to Peter B. Dakan, Public Relations Director, Boeing Marine Systems (P. O. Box 3707, Mailstop 41-56, Seattle, Washington 98124, (206) 655-1198).

**BOEING JETFOIL SERVICE (continued)**

**. . . IN THE FAR EAST, EUROPE, SCANDINAVIA**

Boeing JETFOILS are now operating between Hong Kong and Macao; in the Sea of Japan; in the Canary Islands; on the English Channel between Dover, England, and Ostend, Belgium; and, in the Republic of Indonesia. Indonesia has purchased four additional JETFOILS to be used for coastal patrol.



**THIS AND THAT**  
**Before we Go!!!!**

- Pay your annual dues by 1 JULY!
- Promptly send us any change of address. We don't want to lose you.
- News about our members is an important item for sharing. How about letting us hear from you?
- Items of interest - send them to us.
- Attend the Annual Meeting on 2 May - don't hesitate.
- Do you like this Newsletter? Let us know. Hopefully it will be published every other month.
- Solicit new members. Let's double in size!
- NEW! Corporate memberships are also available. Details in upcoming issue.

**LET US KNOW . . .**

- Promotions
- Awards, achievements
- New additions to the family (births, marriages)

**THAT'S ALL!**





1985

*In Remembrance*



**BARON HANNS von SCHERTEL**

It is with considerable sadness and a feeling of great loss that the Society reports the death of Baron Hanns von Schertel. The Baron was a true pioneer of the hydrofoil industry and remained a leader in hydrofoil technology all his life. Among his many distinguished accomplishments was his selection as the first President of the International Hydrofoil Society. Hanns Schertel von Burtenbach was born on January 8, 1902 in Seeshaupt/OBB, Germany, and died in Stansstad, Switzerland on April 18, 1985.

In 1927 while a student at the Technical University in Berlin-Charlottenburg, he began experimental work with the objective of finding a hydrofoil solution to the seakeeping problems of the flying boat. During the next eight years, the Baron built and tested seven experimental boats. He evaluated a number of foil configurations including both surface piercing and submerged foil concepts. By 1935 he had a working submerged foil test craft but was disappointed with his mechanical depth control device. Recognizing that the development of a satisfactory working depth sensor would require more time, he turned his efforts to the surface piercing system.

His seventh test craft had a V-shaped front foil and an aft foil with trapezoid outer portions. This craft performed fully satisfactory on the Rhine River and was demonstrated on a round trip from Mainz to Cologne -- a distance of 370 km. As a result the Doln-Dusseldorfer Shipline placed an order for a passenger hydrofoil. This was the first order for a commercial hydrofoil. The order was placed with the Sachsenburg Shipyard and represented the beginning of the Schertel-Sachsenburg relationship.

Before starting the commercial order, Schertel and Sachsenburg decided to build a larger test craft. This test craft was the 17-ton, 47-knot VS-6. After a demonstration to the Navy, it was commissioned as an ambulance transporter. By this time World War II has broken out and the Schertel-Sachsenburg effort was directed to supporting the German war effort. The Koln-Dusseldorfer order never materialized. During World War II, a number of hydrofoils were built using the Schertel-Sachsenburg system.

After the war, it was forbidden in Germany to build boats with speeds in excess of 12 knots. This and other considerations led Baron von Schertel and Gottard Sachsenburg to found in Switzerland in 1952 Supramar A.G. That same year Supramar built a small passenger hydrofoil the Freccia D'Oro and initiated the world's first hydrofoil passenger service on Lake Maggion.

For over 30 years Baron von Schertel directed the technical activities of Supramar. He saw world-wide acceptance of his concept of waterborne transportation. In addition licensees were established in several countries to build Supramar products including Leopold Rodriquez Shipyard of Italy, Hitachi Zosen of Japan, and Vosper Thornycraft of England.

The International Hydrofoil Society will particularly miss Baron von Schertel. During his term of President, the Society was established and attracted membership from many countries. Baron von Schertel's presence and lectures at meetings in which the Society was involved were an inspiration to all and particularly to those who would modify the ways of the marine world.

**PHMRON TWO**



The U.S. Navy's only Hydrofoil Squadron is homeported at the Trumbo Point Annex to the Naval Air Station in Key West. In addition to the Commander, Patrol Combatant Missile Hydrofoil Squadron TWO and his staff, a Mobile Logistics Support Group (MLSG) and six ships make the squadron. Commissioned on 1 October 1980, COMPHMRON TWO is commanded by Captain James B. McKinney, USN. The Squadron is assigned to Commander, Cruiser Destroyer Group TWELVE located in Mayport, Florida.

The six ships in the Squadron and their Commanding Officers are:

- |                      |                                 |
|----------------------|---------------------------------|
| USS PEGASUS (PHM 1)  | LCDR Robert L. HOLT, USN        |
| USS HERCULES (PHM 2) | LCDR Jeffrey A. HUTCHINSON, USN |
| USS TAURUS (PHM 3)   | LCDR Vincent P. MOCINI, USN     |
| USS AQUILA (PHM 4)   | LCDR Thomas F. HARTRICK, USN    |
| USS ARIES (PHM 5)    | LCDR Douglas W. KEITH, USN      |
| USS GEMINI (PHM 6)   | CDR Stephen D. SITLER, USN      |

**NEW HYDROFOIL SERVICE IN PARAGUAY**

Aliscafos Itaipu S.A. of Asuncion, Paraguay has introduced two hydrofoils for service on Lake Itaipu in Paraguay. The hydrofoils are re-possessed and reconditioned Albatross' designed and built by Helmut Kock in the United States. The Albatross is a 22-passenger hydrofoil. The Lake cruise includes a visit to the world's largest hydro-electric plant and a panoramic view of a primeval jungle. Six departures are made daily. Mr. Kock writes that he has completed the design of a 65-foot, 72-passenger hydrofoil and is ready to build.

**RHS-160F ENTERS SERVICE WITH CONDOR**

The third RHS-160F to be built by Rodriquez Cantiere Navale of Messina, Italy entered service on Condor's Channel Islands to France route in May. This vessel is named the CONDOR 7 and features two full length passenger decks and a raised bridge. This configuration provides seating for 200 passengers. Condor now has three Rodriquez built hydrofoils in service. These hydrofoils link Guernsey, Alderney, Sark, Jersey, and St. Malo.

**USSR BUILT KOLKHIDAS NOW WITH CERES FLEET**

Ceres Hydrofoils, a Greek operator of hydrofoils, has announced the arrival of two Kolkhidas hydrofoils to join their current fleet of 15 Kometas. The Kolkhidas are exported by SODO of Moscow, USSR. Their principal characteristics are as follows:

Length overall	34.5 m
Beam overall	10.3 m
Draft, hullborne	3.5 m
Draft, foilborne	1.9 m
Full load displacement	68 tons
Range 2	250 nm
Speed	35 kots
Passenger capacity	155
Crew	6

Ceres is based in Piraeus, Greece. Their route network links Piraeus and Zea with Aegena, Methana, Poros, Hydra, Hermioni, Spetses, Porto Heli and Leonidion. From Leonidion service continues on to either Tolo and Naupliun or to Kyparissi, Monemvassia, Neapoli, and Kythina. The distance from Zea to Kythina is 140 nautical miles. With the introduction of the Kolkhidas, Ceres has opened a new route from Volos on the east coast of Greece to the Northern islands of Skiathos and Skopelos.

**CHANGE OF  
COMMAND**



Commander Drew W. Beasley, Commanding Officer of the USS PEGASUS (PHM-1), was relieved by Lieutenant Commander Robert L. Holt, in ceremonies at the United States Naval Academy in Annapolis, Maryland on 21 October 1985. Commander Beasley's new assignment is TERRIER Development/Systems Support Branch Head (SEA 62Z1D). His office is located at Naval Sea Systems Command, National Center, Building #2, Crystal City, Virginia.

*No man is completely worthless -- he can always serve as an example to others.*



### CONSOLIDATION OF HIGH SPEED WATERBORNE SOCIETIES

On several occasions the suggestion has been made that all societies, organizations, groups, and individuals interested in high speed waterborne vehicle and transportation should combine their activities into one international organization. A number of organizations such as our International Hydrofoil Society, the International Hovercraft Society, the Marine Transportation Organization, the Society of Naval Architects and Marine Engineers, the American Society of Naval Engineers, etc. all support to varying degrees high speed waterborne transportation. However, only the International Hovercraft and Hydrofoil Societies are solely devoted to this subject.

New and developing modes of waterborne vehicles are continually emerging into the high speed regime. The family consists of air cushion vehicles, hydrofoils, surface effect ships, catamarans, planing hulls, advanced monohulls, SWATHs, and wing-in-ground-effect vehicles. If all persons interested in this subject were to combine into one group, that group would have a more prominent and louder voice in the marine transportation world. A broader interchange of technical information would result as well as a larger scope of international activities. These results are in the positive side. On the negative side could be the loss of intimacy and concentrated objectives of some of the one vehicle societies.

It is certain that this subject of consolidation will continue to surface. Please let your society know if you have any thoughts on the subject either pro or con on combining into one international high speed waterborne organization.

*Nothing is too good for the company,  
so I gave nothing.*

\* \* \*

*Time wounds all heels.*

**COMING  
UP!**

### JOINT FALL MEETING PLANNED

A joint meeting of the U.S. Hovercraft Society and The International Hydrofoil Society has been planned for the night of 13 November at the Fort Meyer Officers' Club. Allen Ford of the Hovercraft Society is working out the details of the evening so mark this date on your calendar and reserve it for this meeting. The technical portion of the meeting will be a summary review of the Department of Transportation's Worldwide High Speed Waterborne Study. Miss Patricia Cass who was the Department's program manager will be the mistress of ceremonies assisted by Walter Wohleking and Bob Johnston, both from Advanced Marine Systems Associates, Inc., who worked with Miss Cass on this project. A flyer with the details is enclosed.

### MIAMI, FLORIDA STUDYING USE OF HYDROFOILS

Miami, Florida is being studied by private consultants as a location for hydrofoil service. The service to be operated on Biscayne Bay would connect Miami and Miami Beach as well as docks and marinas. The objection is to alleviate traffic congestion by serving the local citizens while providing an attraction for tourists who want to view Miami Biscayne Bay from the waterside. One suggestion has been made that greater Miami's pledge financial support on notes from banking institutions, the money raised to be used to purchase the hydrofoils.

### BOARD MEETING HELD

Board members of the International Hydrofoil Society, North American Association and Operating Committee members of the U.S. Hovercraft Society met jointly on 15 October 1985 at DTNSRDC. The purposes of the meeting were twofold: One, to plan a joint membership dinner/meeting to be held 13 November 1985 at the Fort Meyer Officers Club. Second, to discuss cooperative ventures and possible merger at some future time, or joint society. A flyer is enclosed giving details of the 13 November 1985 meeting.

### JETFOIL FIRM BEGINS EXCURSIONS

Island Jetfoil Corp. began operating a jetfoil passenger service from Seattle to Canada on April 19. The service between Seattle, Victoria and Vancouver started six weeks later than initially scheduled because U.S. Customs Service employees weren't available to handle the incoming passengers.

Government officials on both sides of the border worked for several weeks to eliminate the snags. Though it is not a new problem, Island Jetfoil wasn't notified of the lack of customs support until two weeks before its initial trip was scheduled.

The Port of Seattle had been asking for more customs inspectors for several months and recently completed a report for Congress on the problems the shortage creates. A Congressional hearing on the issue was held in February.

Several thousand tickets had to be refunded by Island Jetfoil. There had been a lot of interest in the service on the part of foreign as well as domestic tour operators and Island Jetfoil officials are hoping the delay won't dampen their enthusiasm. They are hoping business will be good enough to support the purchase of a second jetfoil.

The company purchased the 4-year old Boeing jetfoil, named the Spirit of Friendship, in January, for \$8.5 million. Another \$3 million to \$4 million has been put into the startup of the business, including work at Pier 63 on the downtown waterfront, where the jetfoil will dock.

The jetfoil, which seats 240, will take about two hours to get between Seattle and Victoria as compared with four hours on the venerable Princess Marguerite.

Tickets cost \$45 one-way and \$79 round trip to Victoria, \$70 one-way and \$140 round-trip, to Vancouver.

*NOTE: Island Jetfoil has ceased operations since this article was written. The next newsletter will report on any further developments.*



NAA has received word that Captain William J. Erickson, U.S. Navy, one of our illustrious members, has been assigned to the Staff of Commander Cruiser Destroyer Group Eight in Norfolk, Virginia. Bill's past duty station was as Captain of the USS DOYLE (FFG 39). Earlier command assignments were Commanding Officer of USS PEGASUS (PHM-1) and the Officer-in-Charge of PLAINVIEW (AGEH-1).

### MARINE SYSTEMS TO FOCUS EFFORTS ON MILITARY HYDROFOIL BUSINESS

Boeing Marine Systems (BMS) recently announced that they would concentrate the efforts of the division on military hydrofoil sales. Sales efforts for commercial passenger Jetfoils will be immediately suspended. The commercial production line will be held open until 1 January 1986 for existing customers who might want to order Jetfoils to add to their present operation. The decision was made because prospects for commercial sales in the foreseeable future do not justify continuing investment of management and resources to support both commercial and military lines.

The division will continue the planned reduction of employees and will stabilize at about 425 people by year-end. Bob Bateman has transferred to Corporate Headquarters reporting to Vice Chairman Stamper. Millard Battles is General Manager of BMS, replacing Bateman.

BMS will continue full service and spares support for all existing hydrofoil operators as long as the hydrofoils are in service. Production of patrol craft Jetfoils, such as those now being built for the Republic of Indonesia, will continue, as will sales for both the Patrol Hydrofoil Missiles (PHMs) and military Jetfoils.

A high BMS priority will be the continued logistic support for PHMs and production commitments for the Indonesian Jetfoils. Product support will continue for the 12 Far East Hydrofoil Jetfoils; the two Sado Kisen Jetfoils; two RMT Jetfoils; two Transmediterranean Jetfoils; and Island Research and Development Jetfoils, and those in Indonesia, as long as these Jetfoils are in operation.



## THE INTERNATIONAL HYDROFOIL SOCIETY

North American Association • Post Office Box 2100 • Gaithersburg, Maryland 20879

28 October 1985

### TO MEMBERS OF THE INTERNATIONAL HYDROFOIL SOCIETY

This letter is to tell you about recent important events concerning your Society. The North American Association (NAA) has been asked by the Council of the International Hydrofoil Society (IHS) to take over management of the Society. We have been functioning, in effect, as two separate Societies -- the NAA composed of American and Canadian members and -- the IHS composed of members from the rest of the world.

The NAA is taking steps to merge its Board of Directors with the IHS Council in order to maintain continuity of the Society as described in the enclosed Newsletter. The title of the organization will remain as the International Hydrofoil Society in recognition of its international character. NAA and overseas membership of the Society is vital to continued growth. We ask for your active support.

When the NAA was chartered in 1980, as a chapter of the IHS, the original purpose was to form a closer social association of hydrofoil interested people. The original membership of 50 charter members of the NAA have now grown to over 120 members. The NAA has functioned to serve its North American members by holding annual meetings, including the first Joint NAA/IHS technical meeting in Nova Scotia, Canada in 1982 and by publishing a periodic newsletter. In order to reduce postage costs, it was agreed that the London based IHS would circulate its Newsletters to its overseas members separately from the NAA. Unfortunately, when the International Hydrofoil Society lost its editorial driving force, Commander Mark Thorton, the London circulation virtually ceased with the result that the NAA became the active half of the Society. The new realignment of both halves of the Society will, with your support, solve this dilemma.

As the NAA grew, its aims became more technical than social. The NAA's Board of Directors decided several years ago that a worthy goal would be to undertake to publish a college-level textbook on the "Principles of Hydrofoil Technology." Work on the textbook has progressed very satisfactorily and the NAA is proud that several IHS members are contributing authors to sections of the book. The textbook effort has reached the point where the time is approaching for final editing and selection of a publisher.

The NAA's policy has been to charge its members, other than Life Members, an annual dues of \$20.00, which we now ask of all members of the combined Society. These dues are set aside in an interest bearing account and are reserved for future expenses expected in publishing the textbook. Your continued support of the Society and its textbook program is very much needed as our present funds are not sufficient to meet anticipated publication costs. We ask each international member to indicate support by sending the equivalent of \$20.00 (U.S.) for dues. Those NAA members who have not sent annual dues of \$20.00, please do so at your very earliest convenience. Let us know of any changes of address. Comments and/or suggestions concerning the Society are always welcome. All correspondence should be sent to the above address. We will continue to keep you updated through a regular series of newsletters.

John W. King  
Secretary/Treasurer

*Patsy N. Jackson*  
Patsy N. Jackson  
Recording Secretary



APRIL

1986



1 May 1986

Washington, D.C.

Enclosed with this newsletter is an announcement of the 1986 Annual Meeting of our Society. As usual it has been scheduled to coincide with the annual meeting of ASNE which makes it May 1. We hope all of you will attend for it promises to be an interesting evening as well as an important business session.

The new Board of Directors for 1986-87 will be announced as well as the officers for this year. A change to our By-Laws will be submitted for membership ratification. This change will permit our organization to fulfill the responsibilities taken over last year when we agreed to accept the management of the International organization.

Bill Stolgitis is heading a committee appointed by the Board of Directors to review our By-Laws and to recommend to the membership certain changes. After approval of these changes by the membership, these changes will be submitted to the government to protect our interest under the Not-for-Profit Corporation Law.

We therefore urge your attendance at the annual meeting. You will hear CDR Dave Patch (USN) tell us how good it is going to be for advanced ships in the future U.S. Navy and you will also hear about the changes that are taking place in our Society.

### THE FIFTH INTERNATIONAL HIGH-SPEED SURFACE CRAFT CONFERENCE

7-8 May 1986

England

Enclosed with this newsletter is a brochure on this conference to be held 7-8 May 1986 in Southampton, England. Those who attended these conferences in the past have found them most interesting and worthwhile. It is an excellent opportunity to meet individuals working in the High Speed Surface Craft field from many different countries. It is also a great reason for visiting a bit of England at a delightful time of year.

Comments are often received from our U.S. membership that the price of these conferences are quite expensive. A review of other related European conferences indicates that the fee per delegate for the High-Speed Surface Craft Conference is about the normal amount charged. To justify the fee you have to tell your boss that you can't compare U.S. with European fees.



### RON ADLER WINS "PROCEEDINGS" AWARD

The U.S. Naval Institute Proceedings announced last year an essay contest on the utilization of modern ships and craft. The background for this contest was the Naval Engineers Journal Special Edition on Modern Ships and Craft edited by Bill Ellsworth, one of IHS's Board members. We congratulate Ron Adler, The North American President on being selected as one of the essay contest winners. We look forward to seeing his article in a future issue of the Proceedings.

**URBAN WATERBORNE  
MASS TRANSPORTATION SYMPOSIUM**

26 April 1986

Florida

The Miami Marine Council and the Southeast Section of the Society of Naval Architects and Marine Engineers are sponsoring this symposium on April 26, 1986 at the Marriott Hotel and Marina on the Bay in Miami, Florida. The theme of the program is to look at aspects of the questions facing greater Miami and other growing coastal cities that have waterways and masses of people to be transported. Papers are currently scheduled by the following individuals:

Edward Hagemann - Vice President, Nichum and Spaulding, Seattle, Washington.

William Estralla - Director of Marketing and Special Projects, Blount Marine Corporation, Warren, Rhode Island.

Ricktor Thomas - Los Colinas Water Taxi Service, Dallas, Texas.

John F. DiRessyo - Principal, Peat, Marwick, Mitchell and Co., Washington, D.C.

Donald Burg - Designer and producer of air cushion vehicles.

Matthew Nichols - President of Nichols Brothers Boat Builders, Freeland, Washington.

Robert J. Johnston - President of Advanced Marine Systems Associates, Inc., Gaithersburg, Maryland.

James H. King - Surface Ship Programs Group and John R. Meyer - Hydrofoils Group, David Taylor Naval Ship R&D Center, Carderock, MD on "Surface Piercing Hydrofoil Applications to Ferry Missions - Results of a Trials Program."

Mr. Jean E. Buhler is the General Chairman of this symposium and has done most of the work to arrange a very interesting and appropriate program on the subject matter. Those of you who are interested in attending or want more information on the symposium should contact Jean Buhler. His address is:

Mr. Jean E. Buhler, General Chairman  
Urban Mass Transportation Symposium  
615 S. W. Second Ave., Suite 208  
Miami, Florida 33130



**AIAA EIGHTH ADVANCED MARINE  
SYSTEMS CONFERENCE**



22-24 September 1986

California

AIAA has announced this conference to be held in San Diego, California, September 22-24, 1986. The theme for the conference is "How are these new craft meeting the operators' and customers' needs?" Emphasis is being given to the economic application of technology to result in practical vessels capable of doing what is asked of them in a reliable manner. There will be at least four technical sessions grouped according to the areas of Technology, Producibility and Cost, Military Applications, and Commercial Applications.

Two panel meetings are planned -- one devoted to military applications and one to commercial applications. The Conference General Chairman is Mr. Wilfred Eggington, President of RMI, Inc. The Technical Program Chairman is Mr. Peter J. Mantle, Director of Strategic Planning, Lockheed Marine Systems Group.



**OFFSHORE PATROL**

**JETFOIL MODIFIED**



Dunlop Marine Safety has announced that it has supplied equipment for the refitting of HMS SPEEDY, the Boeing Jetfoil 929-115 previously operated by the Royal Navy. According to the company, the hydrofoil, now renamed SPEEDY PRINCESS, has recently been overhauled and converted for a commercial offshore support and patrol role.

As part of a complete safety equipment package, two Dunlop Seafarer 20-man jettison-type life rafts fitted with hydrostatic release units have been supplied plus fire-fighting and line throwing equipment, distress and daylight signals, other signalling equipment, an emergency radio beacon, stretchers, breathing apparatus, lifebuoys and life jackets. The craft is currently lying in Brighton Marina.

## Counterterrorism

## OPERATION HYDROFOILED

Near dawn on January 30, explosions rocked the Rodriguez Shipyards at Messina, Sicily. When the smoke cleared, two Palestinian-owned hydrofoil ferries were at the bottom of the harbor. Because the operator of the hydrofoils is known to be a supporter of Yasser Arafat, chairman of the Palestine Liberation Organization, police at first theorized that the sabotage was the work of an anti-Arafat group. No such luck. Israeli undercover agents made it known last week that they were responsible for the blasts.

Israel, it seems, was convinced that the hydrofoils, each with a capacity of 150 passengers, had been sent to Messina to be fitted with guns and armor plating so they could be used to ferry Fatah guerrillas into the Palestinian refugee camps in Lebanon, from which they were driven by Israeli troops in 1982. The plan say the Israelis, was for Fatah fighters to make a dash for the Lebanese coast from Cyprus on the high-speed hydrofoils under cover of night. And how did the Israeli spooks who foiled the plan smuggle bombs into Italy? "You just come in as a tourist and bring what you need," said one source. "There are a lot of sophisticated ways of smuggling things in these days."

(Copied from Time, Feb 24, 1986, p. 48.)

*Postscript: The two hydrofoils sunk were the SVALAN and TARNAN, both Rodriguez type RHS 140 passenger hydrofoils. They were built by Rodriguez Cantiere Navale SpA for the Malmo-Copenhagen run, and were used there for 10 years. They were purchased a year ago by a Lebanese owner and utilized on the route from Cyprus to Lebanon. The hydrofoils were temporarily in Messina Harbor for repairs. As a result of program command action with underwater explosives, they were both sunk. Subsequent investigation confirmed that on the bottom of each hydrofoil two special explosives were attached during the night and exploded at the same hour, sinking the hydrofoils. It is unknown at this time whether the craft will be repaired or scrapped.*

JANE'S lists the RHS 140 as 65-ton, 125-140 passenger, 32.5 knot (cruise), 340 nm range hydrofoil with surface piercing V foils.

## NEW HONG KONG TERMINAL OPEN

The new terminal built in Hong Kong for the route to Macau opened in October. Part of the largest structural steel building in Southeast Asia, the entire complex covers an area of 56,000 sq mi cost HK\$1.5 billion to build and has a capacity of 15 million passengers a year.

In addition to 14 ferry berths on two man-made islands reached via 15m high bridges, the site also has shopping areas, restaurants and twin 41-story towers housing offices and a hotel. Described as some of the most sophisticated docking equipment in use anywhere in the world by the supplier, GEC Mechanical Handling, the berths alone cost over 4 million and feature a tide level control system which automatically responds to variations by using ultrasonic equipment to measure the relative position of the platform to the water level.

The platforms can also be adjusted to accommodate all the vessels using the terminal -- Far East Hydrofoil's Jetfoils, Hi-Speed Ferries's 6.26m monohulls, Hong Kong Macao Hydrofoil's JC3000s, PT.50s and RHS 140s, and Shun Tak's ships.

In addition, they incorporate shock-absorbing features to minimize accidental damage to platform or boat and can be locked in a raised position during typhoon alerts. GEC reports that three typhoons did, in fact, occur during the year-long installation of the platforms without any failure or damage being experienced. The company has also revealed that the total value of contracts related to the terminal awarded to its subsidiaries was in the region of 10 million.

PRODUCTION OF NEW SOVIET  
HYDROFOIL REPORTED

An East German news agency has reported that the Cyclone hydrofoil will enter production in Gorky in the Spring. The craft, the story claims, will be powered by 10,000hp gas turbines and carry up to 250 passengers in Sea State 5 conditions. This is in line with earlier published details about the prototype which was scheduled to be launched during 1985. A twin-deck design, reports indicated that this was to be fitted with two 5,000 hp gas turbines and waterjets, giving it a cruising speed of 42 knots and maximum speed of 45-50 knots.



**HIGH-SPEED SURFACE CRAFT MAGAZINE  
CHANGES OWNERSHIP**

"High-Speed Surface Craft" (HSSC) was founded by Juanita Kalerghi in 1961 as "Hovering Craft and Hydrofoil." In December 1985 HSSC was acquired by High-Speed Surface Craft Publishing Associates from Capstan Publishing. The principals of this new publishing company are Alan Blanden, the editor of HSSC and David Woodgate, the advertising manager. Both held the same position under Capstan Publishing.

Six issues are published annually at a subscription rate of 25 (UK postage) or \$50 U.S. Those interested in subscribing can contact the following:

HSSC  
69 Kings Road  
Kingston Upon Thames  
Surrey KT2 5JB  
England

**IHS/NAA OFFICERS  
AND  
BOARD OF DIRECTORS**



The IHS/NAA Board members serve for three years and are elected by the membership prior to the Annual Meeting. Officers, elected by the Board, serve for one year and are installed at the Annual Meeting held each year in conjunction with ASNE Day, in Washington, D.C.

**OFFICERS 1985-1986**

Ronald Adler ..... President  
Raymond Hoop ..... Vice President  
John W. King, Jr. .... Secretary-Treasurer  
Patsy N. Jackson ..... Recording Secretary

**BOARD OF DIRECTORS**

<b>1983-1986</b>	<b>1984-1987</b>	<b>1985-1988</b>
Robert Ripley	William Ellsworth	Ronald Adler
James Schuler	Robert Johnston	Mark Bebar
William Stolgitis	* Ronald McWilliams	Raymond Hoop
James Wilkins	Donald C. Wight	John W. King, Jr.
	* Resigned	

**Mailing Address:**

International Hydrofoil Society  
North American Association  
P. O. Box 2100  
Gaithersburg, MD 20979 U.S.A.

**ISLAND JETFOIL**

**CLOSES DOWN**

Island Jetfoil Corporation, the operator which introduced a Boeing Jetfoil 929-115, SPIRIT OF FRIENDSHIP, into service between the United States and Canada on March 1 suspended operations less than six months later. The company was operating two return trips from Seattle to Vancouver Island and one from Vancouver Island to Vancouver between 0700 and 2130 each day but the issue of a new timetable during the summer suggested that cash flow problems were being experienced.

Although scheduled journey times on each sector were reduced by 15 minutes to 1-3/4 hours, fares were also reduced from July 1 onwards. While this only lowered the Seattle-Vancouver Island trip by Can\$6 to Can\$49, the Vancouver Island-Vancouver fare was slashed by Can\$26 to Can\$29.

**RODRIQUES' HYDROFOIL  
EXPLORING CARIBBEAN MARKET**

During this past winter two Rodriquez-built hydrofoils have been operating out of St. Kitts. These boats are being operating by SNAV, a Rodriquez-owned subsidiary. The St. Kitts government is quite interested in improving inter-island transportation.

Plans are also being formulated to move at least one of the hydrofoils to St. Thomas in the U.S. Virgin Islands. The objective would be to evaluate the Puerto Rico to Virgin Island Route.

**PHM SQUADRON**



The squadron of six hydrofoils, the Mobile Logistics Support Group (MSLG), and COM-PHMRON TWO with his staff comprise PHMRON TWO ported at Trumbo Point Annex, Key West, Florida. The roster of officers below, of 11 March 1986, was furnished by HYSAT (A. Maier, President)

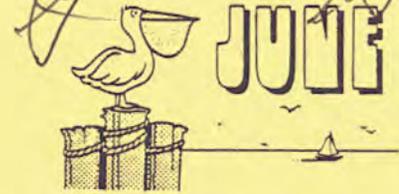
USS PEGASUS (PHM 1)	LCDR R. L. Holt
USS HERCULES (PHM 2)	LCDR J. A. Hutchison
USS TAURUS (PHM 3)	LCDR V. Mocini
USS AQUILA (PHM 4)	LCDR T. F. Hartrick
USS ARIES (PHM 5)	LCDR D. Keith
USS GEMINI (PHM 6)	CDR S. D. Sittler

1253 Hydrog. Ken - F. MEYER  
Therby  
Meyer

# THE NEWSLETTER

INTERNATIONAL HYDROFOIL SOCIETY

P. O. Box 51 • Cabin John, Maryland 20818



Editor: Bob Johnston

JUNE 1989

Production Editor: Patsy Jackson

## IHS NEWSLETTER

Long term members of IHS have for sometime recognized and rightly criticized the absence of a Society newsletter. Part of this can be attributed to the illness of Jim Schuler, our Past President and sparkplug, and the rest to the lethargy of board members in making a newsletter materialize. It would also be helpful if members would submit material of interest to the membership particularly of the changes and accomplishments of the members.

In any event the Board of Directors have promised a quarterly newsletter to the membership. This is the first issue of that commitment. Bob Johnston has volunteered to be editor and Patsy Jackson will undertake the real work of production. Now let us hear from all of you regarding personal notes of interest on news of hydrofoil activities.

## THE ANNUAL MEETING

The Annual Meeting of the International Hydrofoil Society was held at Blackie's House of Beef in Washington, D.C. on 4 May 1989. Twenty-eight members and their wives attended enjoying an evening of camaraderie and catching-up on old friendships.

Bill Buckley presented an interesting talk on his work in determining loads for the foil system of the PHMs. This was followed by a movie of the instrumented HIGH POINT during the foil load trials.

At the annual business meeting, John Meyer announced the results of the election for board members for 1989-1992, and the elected officers for the year 1989-1990:

IHS OFFICERS, 1989-1990	
President .....	Jim Wilkins
Vice President.....	John Meyer
Secy/Treas .....	John King
Recording Secy.....	Patsy Jackson

BOARD MEMBERS		
1987 to 1990	1988 to 1991	1989 to 1992
Bill Ellsworth	Ron Adler	Capt Bill Erickson
Bob Johnston	Mark Bebar	John Meyer
Lanny Puckett	Ray Hoop	John Monk
Phil Yarnall	John King	Jim Wilkins

## REVIEW OF MEMBERSHIP STATUS

Membership fees for 1989-1990 are now due. With this call for dues, the Society is asking for an update of addresses. In addition, a few words about the current position or any other items of personal interest to the membership would be appreciated. If you did not receive a dues notice, please use the one included herein, fill it out and sent it back to the Society with your dues. If you know of any member who has not received this newsletter or anyone who would like to be a member, please let the Society know.

The question is asked to what are the dues used for. One major goal is to publish the Hydrofoil Textbook. Such money that is not used for Society expenses such as postage, stationary, printing, etc., goes toward the textbook fund.

## JIM SCHULER

Jim Schuler suffered a cardiac arrest on 23 January 1989. He was taken to the Holy Cross Hospital in Silver Spring, Maryland and remained there for some time in an unconscious state. Jim was brought home under the devoted care of his dear wife, Marie, still unconscious. Reports at that time for his recovery were not optimistic.

We were all delighted when Jeff Benson reported at the annual meeting that Jim was on the road to recovery. He has regained consciousness, recognizes visitors and, as a good engineer, is working mathematical problems. We all wish Jim a speedy and complete recovery.

## THANK YOU, JOHN MEYER

A special thanks is given to John Meyer for stepping in and taking over the duties of President during Jim Schuler's illness. This has been a particularly busy time for the Society's officers in preparation for the joint sponsorship of the Advanced Vehicle Meeting, the annual IHS election and the planning for the Annual Meeting and Dinner. All of this has been accomplished in an outstanding fashion as is typical of John Meyer.

## KEY WEST RECEPTION

On 7-11 November 1988, the U.S. Navy hosted the 22nd meeting of NATO's Special Working Group Six (SWG/6) on Advanced Naval Vehicles (ANVs) at the U.S. Naval Air Station, Key West, Florida. A high point of the meeting was a reception co-hosted by IHS and the National Hovercraft Society.

SWG/6 is the principal forum within NATO for information exchange on ANVs; its charter tasks the group with investigation of the applicability of ANV technology to NATO missions. Delegates from the member nations of Canada, France, Germany, Italy, The Netherlands, Norway, Spain, the United Kingdom, and the United States meet semi-annually, generally at NATO Headquarters, Brussels. Over 40 delegates attended this meeting, which was the fourth meeting hosted by a member nation and the second hosted by the U.S. since the group's formation in the late '60s. The last meeting in the United States was in Seattle in 1974.

The Group is presently engaged in an investigation of ANV potential in Patrol and Mine Countermeasure Missions. The Key West venue gave delegates a unique opportunity to observe the operations and logistic concepts of the Navy's PHMs and the Coast Guard's SESs, both of which are homeported at Key West, engaged in patrol missions.

A reception hosted by IHS and NHS on the evening of 12 November allowed the delegates to meet with the

hydrofoil and SES operators in an informal setting, and was extremely well attended and well received. In addition to the delegates, there were about 100 attendees from the local area, including officers and wives of PHM Squadron Two; Command, Coast Guard Group Key West; the USCG SESDIV, NAS Key West; Commander, U.S. Forces, Caribbean; members of the Key West Chamber of Commerce; several local IHS/NHS members; and other Key Westers having close association with the Navy and Coast Guard. Jim Schuler, President of IHS, acted as official host.

## INTERSOCIETY ADVANCED MARINE VEHICLES CONFERENCE AND EXHIBIT

Our society is a co-sponsor of the Advanced Marine Vehicle Conference to be held 5-7 June 1989 at Hyatt Regency Hotel, Crystal City, Washington, D.C. Other sponsors are American Institute of Aeronautics and Astronautics, American Society of Mechanical Engineers, American Society of Naval Engineers, Canadian Air Cushion Technology Society, Marine Technology Society, The Society of Naval Architects and Marine Engineers, U.S. Hovercraft Society and Wingship Society. Among the papers will be one authored by John Meyer of IHS on the subject of Hybrid Hydrofoils and another by Jeff Benson, co-author with Joe Sladkey entitled, "A Marine Utility Transported (MUTT) Concept." For information regarding the conference, contact Inter-Society "AMV" Conference Committee, P.O. Box 1071, Mercer Island, Washington 98040 USA.

## NAME CHANGE

With the January-February 1989 issue, "High Speed Surface Craft" became "Fast Ferry International." A yearly subscription now consists of 10 issues. Subscriptions can be sent to Fast Ferry International, 609 Kings Road, Kingston upon Thames, Surrey KT2 5VB, United Kingdom. The prices for a year's subscription are 40 pounds sterling for a UK address and 50 pounds sterling or \$90 U.S. for other addresses.

## PASSENGER HYDROFOILS

"Fast Ferry International" reports that there were 5 hydrofoil deliveries in 1988 and at the end of the year there were 14 outstanding orders. These orders and deliveries involved shipyards in Russia, Italy and Japan. The same magazine identified 209 hydrofoils in passenger service during 1988.

## TWO-MAN BRIDGE A REALITY ON PHMS

In reference to a September 1987 article, "Human Engineering: A Two-Man Bridge on a Navy Ship?", it appears that a two-man bridge is not as distant as one

might think. The U.S. Navy Patrol Combatant Missile Hydrofoil (PHM) is just such a ship. Built by Boeing, the PHM has a bridge which is styled very much like the cockpit of an aircraft. A helmsman controls steering, engines, and foils, while the Officer of the Deck (OOD) conns the ship with the assistance of the Hydrofoil Collision Avoidance and Tracking System (HYCATS), an advanced system that can automatically track contacts, provide maneuvering data, and display harbor charts electronically with actual ship's position.

Both men act as lookouts, a function made possible by the Foilborne Automatic Control System which regulates foil depth, turn rates, roll and pitch, and ship's head automatically, similar to an aircraft's autopilot. Of course, during certain situations, the bridge team is supplemented by lookouts, visual bearing takers, and log keeper. Nevertheless, the vast majority of underway time sees only two men on watch in the bridge, and the PHM routinely performs open ocean operations for days at a time, carries a combat systems loadout similar to a frigate, and is subject to the same rules and circumstances as larger fleet units. As you can see, the two-man bridge on a combatant is a concept which not only is alive, but is in limited practice in today's Navy.

### ANTI-POLLUTION TRIAL

A Rodriquez RHS 160S has successfully demonstrated the use of a hydrofoil to apply a dispersant to an oil slick. Seaborne craft seem to be the most suitable means to apply dispersant over the sea with spray booms due to their large carrying capacity and capability to navigate and to operate under bad weather conditions, and at night. However, conventional craft present some disadvantages. Their operational speed is drastically reduced due to the bow wave breaking and opening up the oil film and not allowing an effective contact between dispersant droplets and the oil. Also spray booms must be shortened to prevent damage from rolling and pitching.

Hydrofoils were considered to be particularly suitable for anti-pollution operations because

- with no bow wave a high operational speed could be obtained
- based on the stability of the craft, long spray booms can be used; and
- with high cruising speeds, transit time can be reduced

The Rodriquez hydrofoil "Alijumbo" a RHS 160S, conducted tests using a real dispersant on real oil slicks. The dispersant was sprayed at 32 knots in sea states ranging from calm to Force 4. When the dispersant reached the sea surface, the effect was immediate. As soon as the propellers disturbance ceased, there clearly appeared a cleaned strip. A thermal infrared imagery

system on board a monitoring helicopter fully confirmed the success of the experiments carried out on the oil slicks.

### WESTFOIL HYDROFOIL

Westfoil International of the state of Washington is building a fully submerged hydrofoil with shrouded air propellers for service between San Pedro and Catalina Island. Westfoil is benefitting from the experience of several ex-Boeing Marine Systems personnel. The hull is designed of fiberglass with RFP/PVC sandwich construction for bulkheads, decks and superstructure. The struts and foils are arranged in a Canard configuration and are retractable. They are to be made of Nitronic 50 stainless steel and composite material.

The main engines will be four Detroit Diesel 12V92TAs each delivering a maximum of 1,080 HP at 2300 rpm. Cruise speed requires an output of about 600 HP each. The four diesels will drive two shrouded air propellers. Arneson drives will be used for hullborne propulsion. These drives along with a bow thruster will be used for maneuvering. The design particulars are:

LOA	24.38m	Service Speed	42 kts
Beam	7.16m	Passengers	149
Displacement	71 tons		
Draft, foils retracted	1.12m		

### PRINCIPLES OF HYDROFOIL TECHNOLOGY

Our textbook remains only partially complete. The final effort requires an editor to review the material that exists and add a bit more, particularly on structures and propulsion. Mike Eames is the ideal individual to undertake this effort. However, Mike has been editing and preparing material for NATO. This excellent effort is coming to a conclusion. Board members and Mike are meeting in Washington, D.C. this May to discuss the final effort to publish, "Principles of Hydrofoil Technology." Volunteers to prepare material on structures and propulsion would be gratefully appreciated.

### PROJECT HYTOW SUCCESSFULLY COMPLETED ON HIGH POINT

The last project completed on HIGH POINT was in support of HYTOW, a joint U.S./Canadian program. Starting in 1977, HIGH POINT has repeatedly served well as a high speed towing platform for Fathom Oceanology's sonar body/winch system and Westinghouse's sonar gear.

The Canadian Embassy has recently expressed its gratitude in a letter to Vice Admiral P. McCarthy (OP-

98) for HIGH POINT and the people who have been responsible for her operation.

*"Over the past decade, the U.S. Navy and two Canadian companies, supported by the Canadian government, have been involved in a two-phased project under the U.S.-Canadian Defense Development Sharing Arrangement (DDSA). This development of a High Speed Towed Active Sonar (HYTOW) married Canadian towed sonar technology to a USN hydrofoil. This project has now been successfully completed.*

*The manner in which the project management team in the David Taylor Research Center and its Bremerton-based Hydrofoil Trials Unit directed this project is exemplary. Their operations epitomized just how international research and development should work."*

The letter went on to express the Canadian embassy's thanks and congratulations to the team for their outstanding efforts.

### **HIGH POINT (PCH-1) LAID UP**

In spite of the many and varied successes of the Grand Lady of the Hydrofoil Fleet, HIGH POINT, she is finally being laid up after more than 25 years of service to the hydrofoil research and development community.

U.S. Navy hydrofoil research and development funding descended to a mere trickle several years ago and finally zeroed out after Project HYTOW. It wasn't because of the lack of good ideas and the proposals to go along with them! The hydrofoil community has been very active in coming up with projects in which HIGH POINT would be as useful as ever. These include Advanced Technology Bridge, Extended Performance Hydrofoil, SOPOD, Forward Looking Radar Height Sensor, and Improved Foil Fabrication Techniques, to mention only a few. All of these could have benefitted PHM mid-life conversion or the next generation U.S. Navy hydrofoil, or both, but the response has repeatedly been: "NO".

Consequently, HIGH POINT made her last "flight" on May 11, 1989 from Renton to the Naval Inactive Ship Maintenance Facility at Puget Sound Naval Shipyard, Bremerton, Washington. Her destiny is certainly in question as of this writing, but future issues of the NEWSLETTER will bring readers up to date.

### **KAWASAKI HEAVY INDUSTRIES BUILDING JETFOILS**

Under a license agreement with Boeing Marine Systems, Kawasaki Heavy Industries is building Jetfoils in their Kobe Yard. Four craft are scheduled for delivery: the first in March of this year, the second in June, the third in September, and the fourth is planned

for delivery March 1990. All hydrofoils are for Japanese customers.

### **SEVENTH INTERNATIONAL HIGH SPEED SURFACE CRAFT CONFERENCE**

A call for papers has been issued for the High Speed Surface Craft Conference. This conference will be held 11-12 January 1990 at Heathrow Penta Hotel, London. Authors who are interested in presenting an original paper, should submit an abstract limited to 500 words. Abstracts should reach the organizers no later than 30 June 1989 at the following address:

High Speed Surface Craft Conference  
24 Leaf Close, Northwood, Middlesex  
HA6 2YY, United Kingdom

### **CHINESE INTERNATIONAL HIGH- PERFORMANCE VEHICLE CONFERENCE**

The Chinese Society of Naval Architecture and Marine Engineering sponsored a High-Performance Vehicle Conference in Shanghai, China, November 2 to 5, 1988. The conference was designated for the promotion of academic exchange and technical cooperation between China and other countries of the world. The high-performance vehicles included planing boats, high-speed catamarans, hydrofoils, ACV, SES, WIG, SWATH, air-lubricated vehicles and other fast vessels for both civil and military use. About 45 papers were presented by authors from Canada, China, the Federal Republic of Germany, Japan, Norway, Poland, the United Kingdom and the United States of America.

Papers of particular interest to hydrofoilers include the one presented by Rexroth SpA of Milan and Cantieri Navali Rodriquez on the development and test of a prototype 937kw hydrostatic propulsion system. The trial installation comprises two propellers mounted on opposite ends of a pod. The results have been encouraging yielding an overall propulsive coefficient of 57-58%. Development is continuing on a contra-rotating propeller arrangement with the propellers immediately adjacent.

A hybrid hydrofoil catamaran was discussed in papers presented by Japan and Norway. The concept reduces the wetted area and resistance of a catamaran by utilizing the lift of the hydrofoils mounted between the lower edge of the two hulls. The damping effect of the foils is claimed to improve the rough water performance.

Other papers presented are "Investigation on Longitudinal Motion Dynamics of Surface Piercing Hydrofoil Type Kometa" by the USSR and "Experiment and Analysis of Shallow Water Effect on a Hydrofoil Boat" by China.

# THE NEWSLETTER

INTERNATIONAL HYDROFOIL SOCIETY  
P. O. Box 51 • Cabin John, Maryland 20818

Editor: Bob Johnston

FALL 1989

Production Editor: Patsy Jackson

## JIM SCHULER CONTINUES TO RECOVER

John Meyer visited Jim Schuler in September at his home where he is under the loving care of his wife, Marie. Jim has his good days and his bad days, but in general is alert and anxious to communicate with his visitors. He appreciates visits -- but check with Marie first at 301-649-2286 -- and would like to hear from his hydrofoil friends! So let's drop a note once in awhile and tell Jim we love him, think about him, and also what are doing. Pictures are a great idea! Jim's address is: 807 S. Belgrade Road, Wheaton, Maryland 20902.

## IHS ANNUAL DUES

This is a gentle reminder to those members who have not paid their 1989 dues that they now are overdue. Also if there are changes of address or members you know who are not getting their Newsletters, please let headquarters know.

We always appreciate information from members regarding reassignment, accomplishments, job changes, or other matters of interest. Please drop us a line and we'll publish the information in the Newsletter.

### IHS OFFICERS, 1989-1990

President ..... Jim Wilkins  
Vice President..... John Meyer  
Secy/Treas ..... John King  
Recording Secy..... Patsy Jackson

### BOARD MEMBERS

<u>1987 to 1990</u>	<u>1988 to 1991</u>	<u>1989 to 1992</u>
Bill Ellsworth	Ron Adler	Capt Bill Erickson
Bob Johnston	Mark Bebar	John Meyer
Lanny Puckett	Ray Hoop	John Monk
Phil Yarnall	John King	Jim Wilkins

### PAST PRESIDENTS

Baron von Schertel (deceased)  
Dott. Eng. Leopoldo Rodriquez  
David Liang  
Robert Johnston  
James Schuler

### HIGH SPEED SURFACE CRAFT CONFERENCE

Plans are proceeding for the Seventh International High-Speed Surface Craft Conference to be held in parallel with the High-Speed Surface Craft Exhibition at the Heathrow Penta Hotel, London, England on 11-12 January 1990. For more information contact the High-Speed Surface Craft Conference, 24 Leaf Close, Northwood, Middlesex, HA6 2YY, United Kingdom.

**HAPPY HOLIDAYS**

## IHS MEMBER WRITES BOOK

### STILL THE MASTER OF THE SEA

by CAPT Karl M. Duff, U.S. Navy

*Still the Master of the Sea* is CAPT Karl M. Duff's own story of his personal relation with God and of his heroic struggle to overcome the unexpected disasters that threatened the Navy's first production hydrofoil lead-ship project, USS PEGASUS (PHM-1) -- and of the "invisible hand" that guided and supported that effort. CAPT Duff honestly tells of his early indifference to the Lord, of the doubts and temptations he faced before his awakening and rebirth. Throughout the book, we see how one man's trust and love in the Lord is rewarded -- and how God oversees and directs the everyday lives of all men.

Here, the power of God to work miracles is an inspiration to all those who believe that God works for good in all things.

This book is published by Vantage Press, Inc., 516 West 34th Street, New York, New York 10001.

### HIGH POINT'S FINAL VOYAGE

At 8:30 on the morning of May 11, 1989, the Navy hydrofoil *HIGH POINT* left Renton, Washington, for the last time. Her destination -- the Navy's Inactive Ships Maintenance Facility at Puget Sound Naval Shipyard (PSNS), Bremerton, Washington. On her last flight she achieved speeds of over 49 knots (56 MPH) and demonstrated high speed maneuvering at maximum turning rates. The trouble-free performance on her last day of operation, after 26 years service, is a tribute to the Boeing crew that operated and maintained her as well as the many Navy crews that preceded them.

The *HIGH POINT* (PCH-1) has been moored at Renton, Washington since January 1985. She was the Navy's first operational hydrofoil, pioneering the way for future hydrofoil development. Her keel was laid in February of 1961, launch was August 1962, and she went foilborne for the first time in May of 1963. Built to be an Anti-Submarine Warfare ship, she instead became part of the Navy's Research and Development program. Originally operated by a Navy crew, she came under the direction of the Navy's David Taylor Research Center (DTRC), Carderock, Maryland, with a Hydrofoil Special Trials Unit Detachment Office at PSNS. *HIGH POINT* was the test bed for many of the systems found on the PHM's, including the automatic control system, navigation system, and foil configuration, to name just a few. Also, the first firing

from a hydrofoil of torpedoes, missiles and guns was accomplished on *HIGH POINT*.

### SPAIN ORDERS THREE RHS 160Fs

Delivery of three Rodriquez RHS 160F hydrofoils has been made to Compania Transmediterranea, the Spanish state-owned ferry operator. The RHS 160F is powered by two MTU 16V 396 TB83s, each having a maximum continuous power of 1400 kw. The craft seats 204 and has a maximum speed of 36 knots.

These hydrofoils are servicing the Alicante-Ibiza Route off the southeast coast of Spain. Transmediterranea operated its first fast ferries between the Canary Islands in 1980 and now operates two Jetfoils there. It also operates a Russian built Kolkhida hydrofoil on their Balearic Islands route network.

Before purchasing, the RHS 160F was evaluated on some 50 potential routes in the Mediterranean, the Balearic Islands, Straits of Gibraltar and the Canary Islands. The craft was reported to perform well in all sea states up to five meters high.

### WESTPORT SHIPYARD INC.

An article in *Marine Log* reports that Westport Shipyard, Inc. in Westport, Washington, is convinced that there is a good market for hydrofoils in the U.S. and hopes to have a hydrofoil passenger ferry design in the water by fall of this year for operator Catalina Express Line in California. The company believes that there are definite parameters for hydrofoil operation. In certain markets, it has a lot of potential. "There are less expensive ways than a hydrofoil to get speed, but it's the most elegant solution to the sea state problem. It is marketed for specialized applications. For calm water in a bay, this level of technology isn't necessary. It's meant for long runs in open seas." Westport's design goal with the hydrofoil is 40 to 42 knot speeds in 10 ft seas and a completed cost around \$5 million.

### JAPAN'S FY90 DEFENCE BUDGET INCLUDES SPARVIERO HYDROFOILS

*Jane's Defence Weekly* reports that the Japanese Defence Agency has requested three Italian Sparviero class hydrofoil missile boats (FAC-Ms) for its Maritime Self Defence Force in its FY90 Defence budget.

The hydrofoils -- to be built under licence in Japan -- will replace five aging torpedo boats (FAC-Ts)

deployed with the Maizuru District Force in the Sea of Japan and the Hokkaido-based Yoichi Coastal Defence Group.

The JMSDF has been evaluating the replacement of the FAC-Ts for some time. Several years ago a decision was taken to order conventional fast patrol boat replacements, but this programme was eventually abandoned because of budget restrictions and the lack of a firm operational concept.

Two types were considered -- the Sparviero and a Boeing design operated by the United States Navy. The Boeing submission was larger and more expensive than the Italian design.

The Defence Agency budget request for the three Sparviero totals 23 billion yen (\$170 million) compared with a Boeing price of \$74 million for a single hull not equipped with armaments.

The JMSDF is to retain the Sparviero's Oto Melara 76mm gun -- a weapon it has used widely over the last 10 years -- but will replace Teseo surface-to-surface missiles with the Mitsubishi SSM-1B, a derivative of the Ground Self Defence Force's SSM-1 land-based system.

The Sparviero has a displacement of 60.6 tonnes, is powered by a Rolls-Royce Proteus 15M560 gas turbine and has a top speed of 40 kts. Of seven vessels operated by the Italian Navy, six were built by Cantieri Navale Riuniti.

### U.S. NAVY CLOSES HYDROFOIL TRIALS UNIT

On December 9, 1988, the David Taylor Research Center closed its Hydrofoil Trial Branch after more than 22 years of technical support to the U.S. Navy's hydrofoil community.

Located at the Puget Sound Naval Shipyard, Bremerton, Washington, the branch originally was established as the Hydrofoil Special Trials Unit (HYSTU) in 1966 as an element of the David Taylor Model Basin's Hydrofoil Development Office. The purpose -- to conduct extensive trials of *High Point* (PCH-1) and *Plainview* (AGEH-1).

The mission of the unit was threefold. It was to test assigned craft, evaluate systems performance, identify design deficiencies and accomplish appropriate modifications necessary to achieve reliable and acceptable craft performance. And that was just one of the three aspects of its mission!"

The other two included the collection of test data for correlation with model tests and computer predictions, establishing criteria for the design of future hydrofoils, and to demonstrate technical feasibility, financial acceptability and military usefulness of hydrofoils in various naval missions.

The unit originally was staffed with military and civilian personnel. The officer-in-charge was responsible to the commanding officer and the director of the Model Basin for all military matters and to the manager of the Hydrofoil Development Project Office for all technical matters pertaining to the operation of the unit. The military crew was removed from *High Point* in 1985 and the craft transferred to Boeing Marine Systems for operation and berthing.

The technology base produced by the Hydrofoil Development Program, in which HYSTU played a major role, led the Navy to integrate procurement of six missile-equipped hydrofoil ships designated "Patrol Hydrofoil Missile" (PHM). Branch personnel also contributed in many ways to the successful Navy acceptance trials on all of these ships before they transited to their home port in Key West, Florida. All of the HYSTU people and the Boeing hydrofoilers over the years deserve a round of applause and a "hardy job" well done!

### KAWASAKI DELIVERS JETFOILS

The first Jetfoil built in Japan under a Boeing license has been delivered by Kawasaki Heavy Industries to Sado Kisen Kaisha. The craft is identical in all major respects to the 929-117 Jetfoil produced by Boeing before withdrawing from hydrofoil production. This Jetfoil, seating 266 passengers on two decks, delivered to Sado Kisen Kaisha is the operator's fourth Jetfoil. The 929-117 entered service on the 36 nautical mile route between Niigats and Ryotsu. The company also operates Jetfoils between Nadetsu and Ogi on the southwest tip of Sado Island.

Kawasaki also delivered in June a 929-117 to Kago Shima Shosen. This Jetfoil entered service on routes among the islands of Kyushu, Tanegashima and Yakushima.

Scheduled for delivery in September 1989 was a third 929-117 configured for only 180 passengers. The passenger reduction results from increased fuel demands for a longer international route. The craft is scheduled to be introduced by Japan Ocean Cruise Line between Nagasaki on the northeast coast of

Kyushu Island and Cheju on the South Korean Island of Cheju-Do.

A fourth Jetfoil is scheduled for delivery in March 1990 to Kyushu Shosen Kaisha. Its planned service is in the Goto Islands.

Kawasaki signed a license agreement with Boeing covering production in Japan and marketing in Asia and Pacific regions in 1987. That same year Kawasaki refitted two Jetfoils built in Seattle by Boeing Marine Systems. These two craft are owned by Jet Line, a joint venture of Kato Kisen and Kansai Kisen, and are operated on two routes across the Sato Island Sea.

\* \* \*

Hiromi Tamagawa is the manager of marine sales for Kawasaki Heavy Industries (USA) Inc. in New York City. Tamagawa says Kawasaki is currently conducting a study to determine if the Jetfoil technology is viable in the U.S. passenger ferry market. Since Jones Act restrictions would prohibit export of the vessels from Japan for use on U.S. routes, Kawasaki would be forced to license an American shipyard to build the vessels for the U.S. market if the venture seemed profitable enough to the Japanese. According to Tamagawa, there are no immediate plans for such an arrangement. But in the two years since acquiring the rights to the technology, the Kobe yard is already under contract to build six Jetfoils -- five for Japanese operators and one for a Spanish operator. "Our business is going very well," says Tamagawa of Kawasaki's efforts to market the Boeing technology.

### A LOVE STORY

The *Flagstaff* was built in 1968 in Stuart, Florida, by the Grumman Corporation. It was used by the U.S. Navy for a Patrol Gunboat Hydrofoil (PGH-1) in competition with the PGH-2 which was Boeing's Tucumcari. The *Flagstaff* was sent over to Vietnam in 1969 for 5 months for patrols along with the Tucumcari. After returning to the USA, the Navy transferred the *Flagstaff* to the U.S. Coast Guard in 1976. It finally ended up in the New England area for Patrols. It was sold in 1981 to a private party in Connecticut. The vessel was drydocked at that time. After it was placed in the water for removal by the owner, it sunk the next day.

The owner had a private contractor raise it and towed to Warwick Cove, Rhode Island, where it was

docked. About 1985 it was pulled up on a mud bank and left there to DIE!

During 1980, I pursued the purchase of the vessel. I was the high bidder the first time it was offered, but my bid was rejected. After two other offerings the vessel was sold. Last August I wondered what ever happened to the vessel. It bothered me for years, after losing that bid! I dug out my old information and made some calls. To my surprise the *Flagstaff* was laying in the mud in Rhode Island. I drove up to check it out. I was amazed to find almost everything still intact. The *Flagstaff* was filled with pigeon droppings and mud. I contacted the owner in Connecticut and purchased it from him.

He had many spare parts still laying around at his business. I proceeded to Rhode Island in April 1989. With a crew, we raised the vessel. We towed the *Flagstaff* to Point Judith, Rhode Island where we had to raise the rear foil since one of the hydraulic actuators had broken. After securing the foils and repairing two small leaks, we towed it to New Jersey. The *Flagstaff* is here at my residence which is on the Inter-Coastal Waterway at Grassy Sound, New Jersey. All eyes are on it when the people pass by.

I plan to overhaul the vessel and I am looking for a sponsor for advertising or I may lease the vessel to a Casino in Atlantic City. I hope to attend the Trump's Castle Offshore Power Boat Race in October 1989, as a checkpoint vessel but I really want to become the Pace Boat for the Offshore Power Boat Association and attend all races on the East Coast.

I have renamed the *Flagstaff*, *THE GOLDEN EAGLE* since it is a golden oldie and the Eagle represents flight and the USA where it was built. I also think that the *Golden Eagle* would be a good draw for any in-water boat show. My long-term plans are to go after the speed and time records for the Miami to New York run. This vessel is truly an engineering masterpiece and a modern day work of art. I hope that all the people that made this vessel possible would be happy to know that *THE GOLDEN EAGLE (Flagstaff)* is alive and will fly again!

Anyone that built, worked on, or operated the *Flagstaff* please write to me:

John R. Altoonian  
**THE GOLDEN EAGLE**  
 800 West Glenwood Avenue  
 West Wildwood, New Jersey 08260  
 Phone: 609-729-3307

# THE NEWSLETTER

INTERNATIONAL HYDROFOIL SOCIETY

P. O. Box 51 • Cabin John, Maryland 20818



Editor: Bob Johnston

SPRING 1990

Production Editor: Patsy Jackson



## ANNUAL IHS DINNER/MEETING

May 2, 1990

See enclosed flyer for details.



\* \* \* \*

## VOTE - VOTE - VOTE

Enclosed herein is a Ballot to nominate four new Board Members to serve for a three-year tenure, 1990-1993. Please vote for four, and return your ballot by 1 May in the enclosed self-addressed envelope.

### *BEST WISHES TO BOB*

Our warmest wishes are extended to our Editor of the Newsletter, Bob Johnston, who has not been feeling "up to par" for awhile. Bob will be undergoing hip surgery on May 17th. He says it is to improve his golf game! After surgery, he will be recuperating at his home, 199 Surf Scooter Drive, Daytona Beach, Florida 32119 USA.

### JIM SCHULER UPDATE

Jim's wife, Marie, reports that Jim is a little bit better somedays; however, there has been no drastic change and none is to be expected. He manages to use his walker from time to time to get up and around. Jim would like to have visitors; after 2:00 p.m. for a short time in the afternoon. Please call Marie, first, at 649-2286.

Also remember that May 6th is Jim's birthday, so send cards! His address is 807 South Belgrade Road, Wheaton, Maryland 20902 USA.



### CHANGE OF ADDRESS

Please let us know immediately if there is a change of your address or if there is a member you know who is not receiving his/her Newsletter.

We always appreciate information from members regarding reassignment, accomplishments, job changes, or other matters of interest. Please drop us a line and we'll publish the information in the Newsletter.

#### IHS OFFICERS, 1989-1990

President ..... Jim Wilkins  
Vice President..... John Meyer  
Secy/Treas ..... John King  
Recording Secy..... Patsy Jackson

#### BOARD MEMBERS

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Lanny Puckett	Ray Hoop	John Monk
Phil Yarnall	John King	Jim Wilkins

## LETTERS TO THE EDITOR

Dear Mr. Johnston:

Thanks for sending me a Newsletter - June 89.

I used to be an IHS member many years ago. But my interests were in sailing hydrofoils; which seem to have gone into the background nowadays. Whilst I retain a general interest in powered hydrofoils, the vast range of aspects is beyond my experience. However, when *Principles of Hydrofoil Technology* is to be published, please let me know. If not too costly for a retired engineer, will purchase a copy.

Sailing Hydrofils - A "Sail Speed Week" has just been held at West Kirby, Cheshire [near to Liverpool] that is an artificial lake by the beach of the River Dee, open to winds ranging from east to south to north. Reputed to be the best small boat sailing water in the world. That is nowadays mainly for sailboards; but also dughies and hydrofoils.

This annual Speed Sailing Week is organised by the Royal Yachting Association, R.Y.A. House, Romsey Rd, Eastleigh, Hampshire, SO5, 4YA, England.

We had three sailing hydrofoils. Maximum speeds in strong enough winds have been around 24 knots. World speed record, so far as we know, 28.15 knots on Portland Harbor, New Weymouth, on the south coast of England, in 1985. Andrew Grogono and James Fowler -- sailing a "Tomado" catamaran fitted with outrigger inclined surface piercing foils.

This year winds were not strong enough. James Grogono brought his latest development "Catapult." This is a catamaran with inflated cylindrical bags as hulls. He has a cross beam with inclined surface piercing foils, plus an inverted Tee foil at stern. Max. 21.84 sq metre sail area.

Then there was the French hydrofoil "Loisien 3000." This is very simple. Beam at stern end carrying a pair of surface piercing inclined foils, plus a planing float out ahead. This hydrofoil bashes through confused seas off Brest, in France. Max sail area 27.8 sq metres. Jean-Bernard Cunin. Max speed: 26.96 knots.

The third hydrofoil "Philfly," Philip Hansford, has a cross beam with two inverted Tee foils. Each foil has a trailing edge flap controlled by a trailing, cantilevered surface sensing surface, which planes.

At stern, an inverted Tee foil which also acts as rudder.

Sail area: 10 sq metres.

\* \* \*

Have you any information as to what is being done in the American continent with sailing hydrofoils? Sailing magazines seldom include news about them. If there is a sailing hydrofill section of the IHS, or a

separate society, I would much appreciate an address to write to.

\* \* \*

A novel development. Whilst not hydrofoils, certainly "high speed craft". These experimental sailing craft use involved sails on glides type wing. Also, free flying, line tethered kits are included. So far, 40 knots on water skis on the Colorado River estuary, USA.

Some of us are engaged in developing larger craft. Hydrofoil water wings are replaced by an air wing and probably 80% of the weight will be carried as air and only 20% on water. In strong enough wind.

Thanks again.

Yours sincerely,

W. R. Frank (Retired Engineer)

Chartered Engines. BSe. M.I. Mech E.

Member of the Amateur Yacht Research Society  
87, Staincruces Common,  
Barnsley S75-6NA, U.K.

Dear IHS Board Members,

I write to thank you for the Newsletter, June 89...

In the following I would like to inform you briefly on my hydrofoil experience and on my present business activities. After eight years as a Supramar AG - employee I have started business on my own, when the company was closed down in 1977. Due to the running licence agreement for a construction of a PT 20 Hydrofoil in Singapore, I spent three more years with Supramar as a free consultant, responsible for all technical matters of the Singapore-construction. In the meantime I got into a contact with a member company of the Swiss Post Handling, Export Assc., and changed then more and more to the development and the projecting work in the material handling, especially in the parcel sorting systems. This engineering, as well as the PC's software developments belong till now to my main activities.

In the beginning of the 80's I have developed and patented my own idea on a retractable foil system with an automatic change of the angle of attack (announced under a kind support of Mrs. Kalerghi in the IHS Newsletter of January 84). Unfortunately I was not successful in finding any company to sponsor the development, yet. My hopes are still here and during this year I could make some interesting contacts to India.

I am always very glad receiving the IHS Newsletters and look forward to the next new one.

Sincerely,

George Chvojka, dipl. Ing.

Technical Consulting

Waldstrasse 32

CLH-6015 Reussbuehl/Lu

Switzerland

### 1989 A SUCCESSFUL YEAR FOR RODRIDQUEZ CANTIERE NAVALI

"Fast Ferries International" reports a record setting year for Rodriguez Cantiere Navale (RCN). With the delivery of their sixth hydrofoil in 1989 RCN reached the highest delivery figure since 1972. In terms of production based on the number of seats sold, this year's figure of 1,250 exceeds the previous 1964 high of 1,095 seats. This year's production consisted of one RHS 150TL and five RHS 160Fs. Currently in production at the Messina Yard are one RHS 150FL, two RHS 160Fs and the first two production RHS 150Fs.

#### Production RHS 150F

Length Overall	28.70 m
Length Waterline	24.00 m
Moulded Breadth	6.50 m
Length between foils	20.00 m
Width Across Foils	11.00 m
Moulded Depth	3.45 m
Draught	
Hullborne	3.10 m
Foilborne	1.40 m
Engines	2 - MTU 12V396 TB83
Passengers	170
Cruising Speed	34 knots
Cruising Range	200 nm

### STATUS OF THE HYDROFOIL INDUSTRY, 1989

The following data was published in issues of "Fast Ferry International."

#### Hydrofoils in Service, 1989

Boeing Jetfoil	22
Hitachi PT20	3
Hitachi PT50	17
Kawasaki Jetfoil	3
Kolkhida	13+
Rodriquez PT20	23
Rodriquez PT50	21
Rodriquez RHS 70	10
Rodriquez RHS 110	1
Rodriquez RHS 140	13
Rodriquez RHS 150F	1
Rodriquez RHS 150FL	2
Rodriquez RHS 150SL	6
Rodriquez RHS 160	8
Rodriquez RHS 160F	14
Rodriquez RHS 200	2
Rodriquez/Hyundai RHS 70	1
Seaflight H57	1
Kometa	107+
Raketa	?

Vosekhod	?
Vosper PT20B	1
Westermoen PT50	1
Total	+ 270

1989 Hydrofoil Deliveries	11
1989 Hydrofoil Orders	16

### SEVENTH INTERNATIONAL HIGH-SPEED SURFACE CRAFT CONFERENCE EXHIBITION A BIG SUCCESS

Walter Wohleking, who chaired one day of the Conference, reports a large turnout with good and interesting papers presented. Lively discussions took place in the forum provided during the 11th and 12th of January 1990 at the Heathrow Penta Hotel, in London. Authors discussed the latest research, development, production and operation of all types of fast waterborne vehicles and their components. Based on the attendance this year, larger facilities are being considered for the next meeting.

Bound volumes of the proceedings are available at 75 pounds sterling for UK and European orders and 85 pounds sterling for other locations. Orders can be sent to:

High-Speed Surface Craft Conference  
69 Kings Road  
Kingston upon Thames  
Surrey KT2 5JB  
United Kingdom

### DYNAMIC SUPPORT -- WHERE NEXT?

As the fast ferry market gains momentum and the yards specialising in high speed craft have order books which are comfortably full, so is the pace of technical development increasing. It is spurred by two main forces -- the desire for more speed and better seakeeping.

To a degree, speed in its own right is a quality which will sell boats in a competitive market, but the wiser ferry operators know, just as navies spent many years finding out, that a high design speed, obtained during trials, counts for little when the going gets tough, and a slower vessel which can maintain a higher fraction of its top speed in a worse sea state is usually a better economic proposition.

Designers are now having to consider seakeeping in more detail than ever before -- it is little use introducing a fast ferry on a new route if, after the first trip, passengers stagger ashore vowing never again.

Fast catamarans have been instrumental in opening up new routes, but as high speed craft enter open ocean conditions the limitations of simple designs become apparent.

We are thus in an era where clear cut concepts are

blurring. Norwegian designers are actively developing foil assisted catamarans, companies in the US and elsewhere are promoting high speed SWATHs, while with the FBM Fast Displacement Catamaran in the UK, now nearing completion, the distinction between the SWATH and the fast catamaran is becoming less pronounced, a point reinforced by the ordering of larger wave piercing catamarans for cross-Channel routes.

Reasons for putting money into R&D are not far to seek: recent figures indicate that the commercial high speed vessel market has grown from 65 vessels in the free world in 1965 to some 520 in 1988, with forecasts of 2000 vessels by 1995.

Norwegian firms reckon to hold around 30% of the global high speed marine craft market now, and have set a market target of 40% (about 60 vessels a year) and a technical target of vessels of 90-100m length and speeds up to 60-65 knots. To this end an NKR 91 million R&D programme has been set up, with investment over the period to the end of 1992. The Norwegian Navy SES minesweeper project is currently instrumental in focussing attention on SES technology, composite construction, and propulsion systems. If this effort pays off, other countries may have cause to repeat their ancestors' cry of a thousand years ago; "from the fury of the Northmen, good lord deliver us!"

*The above article appeared in SHIP & BOAT International, July/August 1989 and was sent to us by Dott. Ing. Leopoldo Rodriguez.*

### PHM ASSIST PROGRAM UNIQUE IN NAVY

The Automated Surface Ships Information System - Technical (ASSIST) records information obtained during the operation and maintenance of the PHM Class hydrofoils. This information is made accessible to the technical communities by means of various computer programs in David Taylor Research Center's (DTRC) VAX Computer System, Bethesda, MD, for quantification and analysis of equipment failure and for identification of problems which require follow-on evaluation and corrective action. The information is collected in three general categories: voyage assessment, failure and maintenance events, and casualty reports. The various input data required are recorded onboard by members of the PHM Squadron according to specific formats. From these forms, the information is compiled into the appropriate ASSIST data base for subsequent retrieval in a number of formats designated by the user.

The system was initially developed by the Hydrofoil Program Office at DTRC in the late 1970s for the purpose of tracking PHM-1 voyage and equipment failure information. In 1983 the program included all six PHMs.

The value of the ASSIST program has been continuously demonstrated through its utilization by the advanced ship community, OPNAV, NAVSEA, PERA (CRUDES) and government contractors tasked to analyze systems and subsystems. On the day-to-day, real world working level, PHMRON TWO in Key West, FL relies heavily on ASSIST RMA data to reduce down time and improve PHM reliability.

### WESTAMARIN FOIL CAT

At the Seventh International High Speed Surface Craft Conference, some details were released on the Westamarin built Foil Cat 2900. The craft has been ordered by Hardanger Sunnhordlandske Dampskipsselskap for delivery in 1991. It will be operated out of Bergen.

#### Westamarin Foil Cat 2900

Length Overall	29.35 m
Breadth Molded	8.36 m
Depth Moulded	3.70 m
Foilborne Draft	1.90 m
Passengers	140
Main Engines	2 x MTU 16V396 TE84
Service Speed	50 knots

### JAPAN MAY ACQUIRE ASW CARRIERS

The Japanese Maritime Self Defense Force (JMSDF) has released details of the new hydrofoil attack craft the service is to acquire, with the request for funding the procurement of the first three boats in the FY 1990 defense budget. The hydrofoil will have a standard displacement of 50t, a length of 23m and a beam of 7m. She will thus be slightly smaller than the Italian *Sparviero* to which she bears a strong resemblance, according to an artist's impression released by the JMSDF. One gas turbine, not yet specified, will give her a maximum speed of 40kt. The weapon fit will comprise one 20mm gun, mounted in a new model of turret, and four SSMs. Other equipments may include an air search radar, a surface surveillance radar, ESM and ECM sets, and a pair of decoy launchers, likely to be Mk36 SRBOC. The complement will be around ten men.

### JAPAN'S JETFOIL RETAINS THE ALLISON GAS TURBINE

(from *MARITIME REPORTER*, January 1990)

The *Maritime Reporter* recently discussed the Jetfoil, manufactured by Kawasaki Heavy Industries in Kobe, Japan, under a license agreement with Boeing Marine Systems, and powered by two Allison marine gas turbine engines, providing a comfortable, relaxing ride for commuter passengers worldwide.

Riding in a Jetfoil is like flying in an airplane. "I fastened my seat belt and watched blue sky and ocean from large windows. There was a sensation of being in a low flying aircraft over water, but there was no feeling of being in a boat," said Bill Melind of Electronic Data Systems in Indianapolis. "It is a fast and convenient way to travel."

The marriage of aeronautical theory and marine design principles resulted in a Jetfoil first introduced by Boeing Marine Systems. In 1986, Kawasaki purchased both design and manufacturing rights from Boeing, retaining Allison gas turbine power. The 501-KF gas turbine engines combined with high-capacity water jet pumps take in water through aft-center struts and discharge it above the waterline through stern nozzles at 110 tons per minute. This high pressure thrust, equivalent to 22,300 pounds, propels the 90-foot boat at speeds up to 45 knots.

Even at top speeds, the fully submerged hydrofoil design stabilizes the ride, keeping passengers comfortable. The Jetfoil flies above the waves. The automatically controlled foils eliminate rocking motion and permit banks into turns without lateral forces on passengers. An Automatic Control System acting as an auto pilot constantly monitors the boat's motion. Pitching and rolling caused by buoyancy are nonexistent with the jetfoil design. The low noise level of the engines and their vibration-free operation contribute to the smooth, quiet ride.

Spacious, carpeted air-conditioned cabins on two decks accommodate over 250 passengers and their baggage. Seats are mounted on tracks to allow a variety of seating configurations. Uniformed flight attendants serve refreshments during the flight.

The Jetfoil propulsion system operates on the waterjet principle. Both foilborne and hullborne modes of operation are used. In the foilborne mode, water is discharged through nozzles in the hull's bottom, providing the thrust to move the ship ahead. With the foils extended, the water path is the same in the hullborne mode of operation.

The Jetfoil propulsion system consists of Allison 501-KF marine gas turbine engines, a speed reduction gearbox, and propulsion pumps. The marine engines use a gas generator turbine with a gas coupled free turbine drive. The gas generator has a 14-stage axial flow compressor coupled to a two-stage air-cooled turbine. There are six combustion chambers of the flow-through type.

**MONOSTAB --  
A NEW TYPE OF SHIP FEATURING  
STABILIZING FOILS FROM DORNIER**

Friedrichshafen. In a cooperative effort with the Italian shipyard Rodriquez, Messina, the

Friedrichshafen-based Dornier GmbH, a Deutsche Aerospace AG company, has developed a novel ship stabilization system for the innovative ferry Monostab. Successful tests have been underway in the Mediterranean since the beginning of the year.

The Monostab concept offers an interesting alternative suitable for fast ferries where high speed, excellent passenger comfort and high efficiency are priority requirements. To comply with these demands, Dornier has developed and built so-called hydrofoils, which are sickle-shaped trapezoidal foils, fitted to crossbars at the left and right of the ship's stern. The crossbars, in turn, are pivoted on a hinge axis, parallel to the longitudinal ship axis. By means of actuators the two hydrofoils can be turned either up or down (higher lift) or one foil up and the other down (roll stability in heavy sea).

Among other things, the following factors were determinant for the design of the Monostab system: At high speed and in smooth sea, a slender, semi-planing ship body changes early into a gliding condition. In rough sea it exhibits good immersion behaviour. A controlled lift system at the stern offers excellent roll stability, simultaneously reduces the ship's angle of incidence during cruising (less drag) and, additionally, permits the propulsion being moved to the rear. The benefits are evident: Better utilization of the ship's space and distinct reduction in noise. All of these factors have led to an advanced new ship type of the 100 MP class featuring a length of 37m, a width of 7.50m and room for approximately 350 passengers. Powered by two 16-cylinder diesel engines from MTU with a combined rating of 3,810 KW (5,180 HP), Monostab reaches a cruising speed of 35 kts.

As a result of its extensive experience with the processing and application of composites, Dornier was tasked with the hydrofoil design and development. Using modern computational methods, the engineers first conducted a feasibility study of the hydrodynamic design. This study revealed that large sickle-shaped foils offer good dynamic performance only when they are custom-tailored from carbon fiber reinforced plastic (CFP). As a structural concept Dornier favoured a multi-spar structure with CFP skin laminates. Based on a prefabricated substructure, the hydrofoil was shaped in several stages starting from the inside and advancing to the outside until the final foil contour was attained. After grinding the hydrofoil surfaces, a special seawater-proof epoxy filler was applied. The antifouling paint to prevent algae growth was applied at the shipyard.

Following the successful measurement trials with the Monostab under various load and sea state conditions, the cognizant Italian authority may now start with the ship acceptance and approval procedure.

## THE U.S. NAVY'S CNO FIRST HYDROFOIL TRIP

by Robert J. Johnston

It was the Fall of 1953 and a small group of hydrofoilers were trying to convince the U.S. Navy that military hydrofoils should be seriously considered for future applications. The program had started as an appeasement to Dr. Vannevar Bush. Dr. Bush was scientific advisor to President Truman with considerable influence on the Navy's overall R&D program. Dr. Bush was convinced at that time that hydrofoils of World War II destroyer size could be used for rapid transport from the U.S. to Europe. Actually, this conclusion was based on data that would prove to be considerably optimistic. Nevertheless, the Navy did not want to cross Dr. Bush and developed a program of hydrofoil research. The program was administered by the Office of Naval Research (ONR) with technical support from the Bureau of Ships, the Bureau of Aeronautics, and the David Taylor Model Basin. A group of universities and contractors also supported the program. Interestingly the program was mostly classified, not because it was full of military secrets, but because of the desire to limit the dissemination of how the Navy was spending its R&D dollars. It was into this climate that your author became the Navy's Hydrofoil Project Officer.

Among the Navy's small test craft was a vehicle built by the Baker Manufacturing Company (a windmill manufacturer) called "High Pockets." This craft was a run-about with four V-shaped, surface piercing hydrofoils. The open cockpit seated eight people and was powered by an inboard gasoline engine, driving a propeller through a right angle drive. The four foils were controlled in a turn to create inboard banking. As a result the craft was quite maneuverable.

"High Pockets" had been evaluated by the Navy at the Patuxent Naval Air Test Center and had demonstrated good rough water characteristics and low power, high speed performance. After a series of instrumented trials at the Test Center, the decision was made to transit the craft to the Washington, DC Naval Shipyard for show and tell purposes. A non-stop flight was made from Patuxent to DC which at that time set a record for speed and distance for U.S. hydrofoils. At that time across the Anacostia River from the Washington Shipyard, or Gun Factory as it was sometimes called, was the Navy's Anacostia Naval Air Station. The Air Station accommodated naval aircraft for senior naval officers and VIPs including the CNO's plane.

Admiral Robert Carney, CNO, was approached to take a demonstration ride on "High Pockets." He countered by requesting that "High Pockets" provide him with transportation from the Pentagon to Anacostia for an upcoming air trip he was making.

The hydrofoil group was only too happy to accommodate and firm arrangements were made to fulfill his request.

CDR Jim Stillwell of BUSHIPS, who was to retire as a rear admiral, volunteered to be the coxswain. LT Bob Apple, who worked with me in ONR and myself, then a LCDR, were to be the crew for this trip. At the appropriate time we had "High Pockets" on-the-ready at the Pentagon boat landing.

As the Admiral and his party, consisting of a couple of Admirals and some staff, approached the boat landing, Bob Apple swung the boat hook he was holding around knocking my Navy cap into the water. Quickly retrieving the cap, we all came to attention and saluted, but unfortunately there was a trickle of water down my cheek as we met Admiral Carney.

The trip to Anacostia was mostly uneventful. We made some sharp turns, drove through boat wakes to show some rough water characteristics and proceeded at a high and a low speed. About half way to Anacostia at the running water level of the starboard forward foil a condom impinged. This caused the craft to roll slightly to starboard then recover lift as the condom submerged. Surely we thought the impinged article would wash off. But no, it stayed on all the way to Anacostia. While the Boat crew was well aware of the problem and resulting motion, none of the passengers were aware or noticed the slight rolling motion. Admiral Carney's remarks were that he had made the fastest trip ever from the Pentagon to Anacostia and would we please transport him back to the Pentagon when he returned later in the day. We, of course, were delighted to oblige.

We now had several hours to stand by and we decided to use that time to give rides to various members of our offices who had requested a chance to ride a hydrofoil. So for the next few hours officers and civilians from our offices and staffs were given rides and demonstrations of "High Pockets." Our riders included several interested women.

Upon Admiral Carney's return, we were at the dockside ready to return him to the Pentagon. The trip back was timely and uneventful. Since it was during rush hour traffic in DC, the Admiral was grateful for the quick return trip. As Admiral Carney's group disembarked, one of the accompanying Admirals handed me a bobby pin he had picked up off the rear seat. With a twinkle in his eye, he remarked that he hoped we had had an enjoyable time waiting for the Admiral's return. And so ended the CNO's first trip on a Navy hydrofoil.

Did the venture do anything for the program? Directly we never saw any significant accomplishment. However, indirectly, from that time on, money and support increased, ultimately leading to the construction of the Navy's two full-scale R&D ships the "High Point" and "Plainview."

# THE NEWSLETTER



INTERNATIONAL HYDROFOIL SOCIETY

P. O. Box 51 • Cabin John, Maryland 20818

Editor: Bob Johnston

SUMMER 1990

Production Editor: Patsy Jackson

## ANNUAL MEETING

The Annual Dinner/Meeting was held on 2 May 1990 at Blackie's House of Beef, Washington, D.C. The membership elected four members to the IHS Board of Directors. On 11 May 1990, a Board of Directors Meeting was held and Officers for the coming year were nominated and various committees were established by President Wilkins to encourage continuous leadership and activity.

### *IHS OFFICERS* 1990-1991

President .....Jim Wilkins  
Vice President.....John Meyer  
Secy/Treas .....John King  
Recording Secy.....Patsy Jackson

### *BOARD OF DIRECTORS* 1990-1993

Jeffrey Benson  
William H. Buckley  
William M. Ellsworth  
Robert J. Johnston

### *COMMITTEES*

Nominating ..... Jeff Benson  
Textbook ..... Bill Ellsworth  
Ways and Means .... John King  
Program ..... Ray Hoop  
Membership ..... John Monk  
Public Relations .... John Meyer  
Newsletter ..... Bob Johnston

Textbook Committee Report. Mike Eames has tentatively agreed to act as editor now that he has retired from DREA. However, he will not become active in the editing process until the missing chapters are provided. Additional funding is required for editing/publishing. Bill Ellsworth and Mark Bebar will investigate possible sources of funding support. It is also becoming apparent that some Honorarium may have to be provided to obtain authors for the missing chapters. Currently three possible sources have expressed some interest in publishing the textbook: Cambridge Press, U.S. Naval Institute, and the MacArthur Foundation.

## CNO's PHM CZAR ADDRESSES ANNUAL MEETING

At the May 2nd meeting, Commander Charles W. Luck, the Chief of Naval Operations' platform sponsor for PHM's and other advanced ships, addressed the Society on the current status of the Navy's PHM program. Following a review of the PHM mission, capabilities, and characteristics, CDR Luck brought the group up to speed on current PHM employment. He pointed out that the ships operate very much as other Atlantic Fleet units do, participating in about 1 major exercise per month, 3 to five port visits per month (including some Caribbean ports which are inaccessible to larger ships), surveillance operations, and combined operations with allied navies.

More importantly, the PHMs are heavily committed to the national counter-narcotics effort in the Caribbean. The Squadron maintains at least one PHM permanently on call to respond to drug intercept taskings from the on-scene commander, and devotes more than 45-ship days per quarter to other counternarcotics activities.

PHMs have accounted for about 1/3 of all Navy assisted drug seizures made since 1983. CDR Luck attributes this high success rate to the ships' high speed and maneuverability which make them highly effective in "stern chase" scenarios and other situations such as air drops of drugs at sea. In many cases, he pointed out, PHMs are the only ships in the Navy or Coast Guard capable of intercepting the suspect craft.

CDR Luck believes that, as a result of this impressive record, PHMs are on a much sounder footing in competing for scarce resources within the Navy. He reviewed with the group a number of serious PHM Class problems that have recently been corrected and several planned class improvements related to law enforcement. The most significant of these improvements, in his opinion, will be incorporation of a lightweight Link 11 capability.

In closing, CDR Luck stated his desire to continue the outstanding communication that exists between the operational and technical members of the hydrofoil communities within the IHS. "It is," he said, "Your expertise, energy and enthusiasm, that have brought [PHMs] successfully through the 1980s and which will continue to improve them in the 1990s."

## FOIL ASSISTED CATAMARANS

Robert Trillo, editor of *Jane's High Speed Marine Craft* writes:

Within the next year we should be seeing the hydrofoil lifting surface coming back in a very interesting combination with the catamaran principle. The Fjellstrand Foil Cat concept really does seem to offer the chance of another leap forward in service speeds, taking them up to 50 knots, as well as offering improved ride and economy against conventional catamaran craft. I think we are now beginning to see a real refinement of the optimisation process in high-speed craft development and I believe this will lead to craft filling quite specific niches in the near future."

At the same time the May issue of *Fast Ferry International* reports on Norway's last hydrofoil.

One recent piece of Norwegian fast ferry history that has gone virtually unrecorded was the sale overseas of the country's last hydrofoil. A total of ten were operated during the previous 27 years, the peak number at any one time being nine in 1972. Although the numbers were relatively small, it was the hydrofoil that confirmed the potential of high speed at sea and paved the way for the catamarans that subsequently revolutionized both local and coastal transport.

Surprisingly, the majority of the hydrofoils operated were built not by Westermoen Hydrofoil but by Rodriquez, the Italian company had already delivered two PT.20s and two PT .50s before the first PT.50 was launched in Mandal. Although Westermoen built 10 hydrofoils between 1962 and 1970, only four PT.20s were operated by Norwegian companies and two of these were originally delivered to Sweden. Total production in Mandal comprised the four PT.20s, three PT.50s and three PT.150s.

Although this may have marked the end of hydrofoils in Norway, at least three yards are planning to launch foil assisted catamarans during the next year. So it is unlikely to mark the end of foils in Norwegian waters.

Kyaerner Fjellstrand released some details of their FoilCat design at the Seventh International High Speed Surface Craft Conference.

The vessel is being developed, at an estimated total cost of approximately \$1.4 million, in association with Marintek in Trondheim and tank testing

began here in autumn 1988. Trials of a manned 9m x 3m twin-engined 1:4 scale model followed last summer off the island of Krakvag at the entrance to Trondheim Fjord.

The FoilCat design is based on a slender hull catamaran having a fully submerged foil forward on each hull and a fully submerged full widthfoil across the stern. All three will be fitted with computer controlled flaps.

One machinery possibility being evaluated, in collaboration with Kvaerner Brug, is the installation of gas turbine engines. Kvaerner Fjellstrand estimates that the vessel will have a service speed of 50 knots and fuel consumption some 50-60% lower than conventional catamarans. First cost will be "rather higher than the current \$5.6 million for a 38.8m catamaran" but the company points out that the design offers operators lower fuel consumption and fewer service cancellations.

First details were also released at the Seventh HSCC Exhibition of the Westamarin FoilCat 2900 ordered by Hardanger Sunnhordlandske Dampskipsselskap for delivery in January 1991. To be operated on the company's routes servicing Bergen, the vessel will be classified Det norske Veritas + 1A1 R90 Light Craft EO. Construction materials will be aluminum alloy for the hull and stainless steel for the fully submerged foils.

### Westamarin FoilCat 2900

Length overall	29.25m
Breadth moulded	8.36m
Depth moulded	3.70m
Foilborne draught	1.90m
Passengers	140
Main engines	2 x MTU 16V 396 TE84 2,000kW at 2,000 rpm
Auxiliary power	2 x 32kW
Service speed	50 knots
Propulsion	Ulstein-Liaaen Speed Z CPZ 60/42-125LHC

International Catamaran (INCAT of Australia) have also announced the development of a foil augmented craft designated the TriFoil.

The Trifoil is a triple hulled vessel fitted with foils. The centre hull is extremely slender and is very deeply veed in the bottom. The side hulls are even more slender than the centre hull and are about half the length of the vessel. They are fitted to provide stability

when the vessel is at rest or travelling at low speed.

As speed increases, the foils provide lift and at service speed carry about 75% of the vessel's weight. The remainder of the weight is supported by the buoyancy of the centre hull and the side hulls run just touching the water surface. The centre hull controls the vessel's seakeeping characteristics and is provided with a Wave Piercing form of bow to assist in this regard. In the interest of simplicity and reliability, the craft will normally be offered with no moving parts. However, if a customer requires it, the foils can be fitted with active flaps to augment the vessel's seakeeping ability.

By keeping the centre hull in the water, the vessel can be fitted with simple state of the art drive, i.e., diesel engines driving hull mounted waterjets or Z-drive propellers. There is none of the drive complexity of most previous hydrofoil craft.

It is confidently believed that the Trifoil will fulfill the objectives of improved seakeeping, increased performance and reduced operating costs. Trifoils will be offered in a wide range of sizes in the same way that conventional catamarans and Wave Piercers are built at present. Trifoils will not replace either conventional catamarans or Wave Piercers. They have their special attributes and will be offered where those attributes are required.

### U.S. NAVY'S PHM SQUADRON ACTIVE IN DRUG INTERDICTION

*Sea Power* (May 1990) released some interesting information on the use of the PHM squadron in drug interdiction:

The intensification of America's war on drugs has given one small squadron of Navy ships a new lease on life. In turn, the extraordinary achievements of the six ships of that squadron in reducing the flow of illegal narcotics into the United States through the Caribbean and the Gulf of Mexico may well have persuaded Navy leaders and officials in other government agencies to realize that an unusual high-seas asset has been under-utilized in this role in the recent past.

Despite the limited use of PHMs in the drug war until mid-1989, during the last four years they have been responsible for 30 percent of the Navy's overall drug "busts" -- drug traffickers in the Caribbean have started calling them "Bolar Gris Miedo" (Flying Grey Terror).

Since 1 July 1989 the PHMs have been increasingly the "force of choice" in drug-interdiction operations. Perhaps the best testimony to their value is the number of calls received for a PHM on alert to get under way, on very short notice, on an intercept mission. Any law-enforcement agency can call

through the commander of Joint Task Force 4, the coordinator of Department of Defense drug-interdiction assets in the Caribbean, for emergency sorties by the PHMs. In the first six months of 1989, only one such call was made. In the last six months of the year, though, PHMs on standby got under way 27 times as the result of emergency calls.

According to CAPT Ron Berning, PHM squadron commander, there were seven calls in the first two months of 1990, during which time--59 days--PHMs were under way on anti-drug operations 57 days.

As in almost all long-drawn-out campaigns, many of the anti-drug operations are purely routine--and a number have been frustratingly fruitless, because aircraft planning drug drops turn back when they see the PHMs are in the area, ready to pursue the vessels awaiting the drops. Some PHM missions are dramatic indeed, though. One night last November, two PHMs were patrolling together just north of Cuba in support of a joint Coast Guard/Customs/Navy operation giving chase to a "go fast" boat when a customs-operated helicopter suddenly went down. One of the PHMs immediately started a search for survivors, and saved five of the helicopter's six crewmembers. The other PHM continued its pursuit of the drug trafficker, and after a 70-minute high-speed chase--at well over 40 knots, *without lights*--until the target abruptly went dead in the water. Its transmission had burned out; the PHM had considerable fuel left for an even longer chase.

In January, in another Caribbean operation, a PHM intercepted a trawler with three tons of cocaine aboard--a cargo with a street value of millions of dollars.

The high operational tempo translates into a tough life for PHM crew members. The PHMs usually go to sea with five officers and 20 men, and a Coast Guard law-enforcement detachment (one officer and four men) also embarked. All hands stand "port and starboard" watches (six hours on, six off) while under way. Intercepts, boardings, and seizures are all-hands evolutions; during the latter two operations the PHM crew must stand ready both to protect their own ship and to cover the Coast Guard personnel when they board suspected drug vessels.

During a typical 3-4 day patrol a PHM might carry out as many as 12 boardings, at all hours of the day and night. The squadron no longer deploys only from Key West, but now also operates off the Yucatan Peninsula and from the naval bases at Guantanamo Bay, Cuba, and Roosevelt Roads, Puerto Rico (where the PHMs are supported by nine maintenance detachments from the Mobile Logistics Support Group (MLSG)).

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*Remember there are no bad days -- some are just better than others.*

## U.S. MODIFICATION FOR KOLKHIDA HYDROFOIL

Jensen Maritime Engineering, a company based in Fort Lauderdale, Florida, has developed a modification to the control system of the Kolkhida hydrofoil. The work followed an evaluation of the suitability of various hydrofoils for operation in the Caribbean and Canada.

According to the company, this revealed that the inverter used on Soviet hydrofoils, which is crucial to the stabilizing system and autopilot, has a tendency to fail within a relatively short time.

It consequently designed a solid state inverter "custom built for maritime use and based on aerospace technology." Alilauro Aliscafi del Tirreno, the Italian fast ferry operator whose fleet includes five Kolkhidas, has ordered the first to be produced and taken an option on another five. Delivery time is currently about four weeks, but Jensen Maritime hopes to halve this.

## THE DEVELOPMENT OF A HYDROSTATIC TRANSMISSION

Last year's Europort Exhibition in Amsterdam saw the launch of the Power Shaft HS-5000, a variable torque hydrostatic propulsion system specifically designed for use in high speed craft. The unit is the culmination of five years development and testing by the Swiss company Hydromarine, in conjunction with Canteri Navali Rodriquez.

Hydromarine's concept of using hydrostatic transmission in marine propulsion systems was first unveiled in November 1988 at the International High Performance Vehicle Conference held in Shanghai. In a paper presented to the Conference it was announced that a prototype hydrostatic propulsion system had been developed and tested using a Rodriquez PT .20 hydrofoil (*Fast Ferry International*, March 1989). However, there was a long way to go before the Power Shaft series of hydrostatic transmissions was to emerge.

The project started in the early 1980s when the advantages of a hydrostatically driven propeller system could offer to hydrofoils was recognized. The PT .20 used in the initial tests is capable of carrying 75 people and equipped with a power unit that can deliver 1,000kW. While, for a variety of reasons, the converted craft was not an ideal test bed, its great advantage was that it allowed a direct comparison to be made with a traditionally equipped vessel as many measurements had already been carried out on the PT .20.

Much work went into the design of the test hydrostatic propeller drive and what the company ended up with was a unit with a displacement of 2,000cm in a torpedo shaped housing, which had a

diameter of 380mm, a length of 2.7m and a propeller fore and aft. This complete unit was then hydrodynamically installed in the rear foil structure of the test craft.

Hydromarine reports that the first trials, despite the limitations of the test craft, were very successful with all the theoretical results being confirmed. Performance was definitely enhanced, the vessel being able to achieve a speed of 38 knots, four knots faster than the craft had been capable of before the conversion. It was also possible for the craft to get up on its foils in half the time it previously took because of the unit's ability to convert the engine's power into torque.

After the initial trials the craft underwent a series of test runs to gather data for further design development before being introduced on passenger services across the Straits of Messina. Finally, after all the test results had been collated, the information was used by Rodriquez to develop a new series of MEC (Maximum Efficiency Craft) hydrofoils. The MEC 1 has a capacity of 114 passengers, while the substantially larger MEC 4 has a capacity of 450 passengers.

## WATER TRANSPORTATION

A recent MIT *Technology Review* has an article recognizing the increasing role being served by high speed ferries.

Hydrofoil ferries -- the increasingly familiar high-speed water craft supported by wing-like attachments - shuttle passengers every half hour from Hong Kong to the nearby island of Macao. Hovercraft supported on a cushion of air provide transport along the Volga River in Soviet Russia and across the English Channel. In some 50 nations, waterborne mass-transit services are carrying growing numbers of passengers at speeds up to 70 knots.

In a recent article in *Maritime Policy and Management*, Ernst G. Frankel of MIT's Ocean Engineering Department calculates that water craft can carry passengers for 40 to 60 percent as much as land-based transit, even ignoring the cost of roads. Since 72 percent of all cities with a population of 250,000 or more are on rivers or coasts, Frankel concludes that waterborne mass transit can substantially relieve urban traffic congestion.

Different types of vessels serve different purposes. Catamarans, such as the Sea Bus that ferries passengers a couple of miles from Vancouver City to North Vancouver in Canada, travel relatively slowly, usually less than 20 knots. But since they float rather than planing or being supported on air, they are inexpensive to operate and can be built large, up to 860 tons. Faster vessels are smaller and require 10 to 100

times as much horsepower per ton. Air-cushion vehicles of 200 tons travel at up to 70 knots. However, they slow to half that when waves reach 5 or 10 feet, while 200-ton hydrofoils, which typically travel at 50 knots, can take seas of 10 or more feet without losing appreciable speed.

### NATO's SWG/6

The Society of Naval Architects and Marine Engineers *Marine Technology* (March 1990) presented an interesting summary report on NATO's Special Working Group Six (SWG/6). The report is titled "The Promise of Advanced Naval Vehicle for NATO" by D. R. Lavis, W. W. Rogalski, Jr. and K. B. Spaulding. SWG/6 was established in recognition of the potential of advanced naval vehicles (ANV's) for future NATO missions. Currently eleven of the sixteen NATO nation's are members of SWG/6. Nine of these nations have been active in the development of SWATH, SES, hydrofoils or air cushion vehicles ACVs). Several members of IHS have been participants in SWG/6.

One of the ship designs described is called the U.S. Hydrofoil. Its basic missions are escort operations, open-ocean sea-control operations, surveillance and reconnaissance, barrier or containment operations, mine warfare, and other less demanding tasks such as protection of maritime resources or search and rescue. The principal emphasis is on Anti-Submarine Warfare (ASW) and Surface Warfare (SUW) with anti-air warfare (AAW) limited to a self-defense capability.

The following table summarizes the principal characteristics of the U.S. Hydrofoil:

Length, overall	66m
Beam, maximum	23.3m
Keel clearance	3.66m
Draft foilborne	3.60m
Draft hullborne (foils down)	8.63m
Draft hullborne (foils up)	2.62m
Displacement full load	773mT
Displacement light ship	577mT
Propulsion power installed	
Gas turbine	22380kw
Diesels	3133kw
Electrical generating capacity	1035kw
Complement	54
Maximum continuous speed	40 + knots

\* \* \*

*Happiness is not a reward -- it is a consequence.*

*A man travels the world over in search of what he needs and returns home to find it.*

## WELCOME New Members



### David M. Kaeser (Keyport, WA, USA)

Mr. Kaeser was a hydrofoil crew member aboard PLAINVIEW (AGEH-1) from Jan 1972-June 1975. During that time he served as Yeoman Second Class/First Class, U.S. Navy.

### Tom Coker (Wheaton, MD, USA)

Mr. Coker is Program Manager for HYCATS, Naval Sea Systems Command, U.S. Navy.

### CDR Charles W. Luck (Clifton, VA, USA)

CDR Luck is the Office of the Chief of Naval Operations sponsor for the PHM in OP 321.

### Yehuda Manor (Jerusalem, Israel)

Mr. Manor is the Director of Major Interface Craft. He has been involved since 1986 in the development of a very interesting concept for a hybrid hydrofoil combining hydrofoils, buoyancy tanks and aerodynamics in ground effect.

### David Bardill (Cincinnati, OH, USA)

Mr. Bardill has been working with Boeing/Kawasaki Jetfoil Gear Boxes, Pegasus Gearboxes at Cincinnati Gear Co.

### Gary D. Rolih (Cincinnati, OH, USA)

Mr. Rolih is with Cincinnati Gear Co. which supplies Kawasaki (Boeing) Jetfoil reduction gears. Overhauls PHM-1 reduction gears. CGCo is active in lightweight, high performance ship reduction gear market. Gary is active in Marine Marketing/Government Sales.

### James Ferensic (Gainesville, FL USA)

Graduate student at the University of Florida, who has loved boats all his life and is now developing a computer control system for a hydrofoil.

### Jeffrey Vielhauer (Cincinnati, OH USA)

Project Engineer at Cincinnati Gear Co. producing reduction gears for the Kawasaki, Jetfoil and rebuilding gearboxes for the PHM program.

\* \* \*

The error of youth is to believe that intelligence is a substitute for experience, while  
The error of age is to believe that experience is a substitute for intelligence.

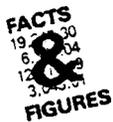


ROY McLEAVY, whose name was for many years synonymous with hovercraft and hydrofoils, died recently in Ostend, Belgium. He had suffered a stroke in 1985 and a second one at the end of last year.

From 1967 until 1985, Roy was the founding editor of *Jane's Surface Skimmers*, the annual reference book on worldwide advanced marine vehicles. In typical fashion, he developed this publication into a well respected and invaluable source of information. Often Roy was able to elicit many tidbits of material from unpublished and obscure sources. His ability to generate fascinating entries on Soviet and East European activities, especially on topics such as Wing-In-Ground Effect vehicles, made each edition the subject of much attention at press time. He had only just completed the 1985 edition, his eighteenth, when he suffered his first stroke and had to relinquish the editorship.

Roy was particularly excited by the potential of hovercraft and hydrofoil developments, and this led him to plan for a magazine which was launched in 1961 as *Hovering Craft & Hydrofoil* (the forerunner of *Fast Ferry International*) in conjunction with Juanita Kalerghi.

Roy McLeavy was often surprised and sometimes a little embarrassed at the influential role he played for the hovercraft and hydrofoil communities. His name could open doors, cause company officials to reveal otherwise secret commercial projects and excite many millions of readers of his books and articles throughout the world. As someone once said of Roy, "He was the best public relations man the hovercraft and hydrofoil industries ever had."



#### ODDS AND ENDS

- HIGH POINT went to a scrapper, Command Commodities of Chesapeake, VA for \$39,999.99.
- Mike Eames has recently retired from DREA, Canada (see article on page 1).
- Change of address:  
David A. Patch  
Vice President, Marketing  
ALUPOWER, INC.  
150 Mount Bethel Road  
Warren, NJ 07060  
Phone: 201-604-8556, or 201-604-8580



## AN EVENING WITH PAULETTE GODDARD

by Robert J. Johnston

A recent Associated Press article, datelined Geneva, Switzerland reporting the death of Paulette Goddard, reminded me of how the world of hydrofoils presented the opportunity to spend an evening with this famous movie actress. To those who may not remember Paulette, or have not seen her in the American Movie Classics on television, a little background may be helpful. Her second husband was Charlie Chaplin, with whom she co-starred in such films as "The Great Dictator" in 1940, and "Modern Times" in 1936. During the early 1940s, she appeared with Bob Hope in "The Cat and the Canary," "The Ghost Breakers" and "Nothing But the Truth." She continued to star in films throughout the 1940s.

Paulette's marriage to Charlie Chaplin ended in divorce in 1942. She was married to Burgess Meredith for a short time until they brokeup in 1944. In 1953 Miss Goddard was living in Switzerland with Erich Maria Memarque, the German-born American novelist. He became famous in the 1920s for his anti-war "All Quiet on the Western Front" which was banned in Nazi Germany. They resided in Ronco, Switzerland, a picturesque village overlooking Lago Maggiore where they were married in 1958. In 1970 Remarque died and Paulette continued to live in Ronco until her death.

With this background, we can now fit in how Paulette Goddard became acquainted with hydrofoilers. In 1953 the U.S. Navy determined that a review should be made of European progress in the development of hydrofoils. A visit was organized to England, France, Germany, Switzerland and Italy with the late Phil Eisenberg (then Head of the Office of Naval Research's Mechanics Branch) and me as the Navy's investigators. Some development work was going on in all the named countries. Professor Wienblum of Hamburg, Germany was retained to assist us in Germany and Switzerland. Professor Wienblum had been involved with the World War II German hydrofoil war effort working with the Sachsenberg-Schertel team. After the war, Wienblum had come to the United States as a paperclip scientist, working at the David Taylor Model Basin where he had established an outstanding technical reputation. Baron von Schertel had escaped from Germany and had gone to Switzerland where he helped found Supramar. Many of the Sachsenberg-Schertel team had been captured by the Russians and were working in their hydrofoil effort, but those who managed to evade the Russians had joined Supramar in Switzerland. During the summer of 1953, Supramar had built and introduced a commercial hydrofoil on Lago Maggiore between Locarno, Switzerland and Stresa, Italy. This is considered to be the first



successful commercial hydrofoil operation. This vehicle, designated as PT 10, was of particular interest to the U.S. Navy, which made Lago Maggiore a principal stop on the Navy's team visit.

The PT 10 was a typical early Supramar design. It held about 32 passengers in the cabin with an open cockpit in the fore part of the craft where the Captain and a crew member were stationed. It is remembered that on Lago Maggiore, the Captain played a musical horn as he approached each stop on the run around the lake. The service quickly gained popularity as the roads around the lake were quite slow.

Our visit was in mid-October, which was well past the tourist season, but Supramar had kept the boat on-route in order to demonstrate it to us. The day before we arrived, Fall rains had dislodged some large tree trunks from the mountainside and they had washed down into a semi-submerged condition in the lake. With a load of passengers, the craft had hit a trunk at foilborne speed. No damage had been done, no passengers were hurt, the trunk was washed clear upon backing down and the trip had continued on schedule. This answered one of our questions as to what happens if you hit something with the foils.

We made the last passenger run with the boat and then it was turned over to us for trials and demonstrations. We spent four or five days with the boat, its designers and promotors. The highlights of our learning experience were as follows:

- The boat had a top unloaded speed after the summer operation of 32 knots.
- It handled all but the most severe storms on the lake with passenger comfort.
- It was directionally stable but not particularly highly maneuverable.
- When you are cold and wet from running the boat, a big mug of hot American coffee is better than Espresso.
- A good place for lunch is the monastery at Largo Maggiore on St. Catherine Island in the middle of the lake. Even though the weather was quite cool and the dining room was unheated, the monks serving the meal were quite happy and pleasant. We attributed this to the good and plentiful wine the monks produced, served and drank on their Island.

We were staying in the village of Ascona, a Swiss village with palm trees on the Southern side of the Alps, heated by the winds from the Sahara. The village was deserted by the summer vacationers reducing the population to a few year-long residents and some late Fall visitors such as ourselves. In the evening about the only entertainment was found at a small village tavern that featured local red wine and chestnuts. The proprietor was a veteran of the Swiss Air Corps and his wife was the proprietress. Everyone

sat at small tables around a huge open fire which was used for roasting the chestnuts. The proprietress prepared the chestnuts by wrapping them in a burlap bag soaked in wine and roasting them in a large iron skillet. When they popped, she dumped them on your table and with a glass of good wine and good conversation, it made for a very pleasant evening. Many stories were told and many problems of the world were resolved around that big fireplace.

One story I have never forgotten was the one told by the proprietor, the ex-Swiss Air Corps Pilot. During World War II, practically every mountain top in Switzerland had an anti-aircraft battery located on it. The objective was to protect Swiss neutrality against all invaders of their air space. On this particular occasion, a squadron of U.S. bombers was over-flying the Swiss territory. The Swiss commander radioed the squadron that they were over Swiss territory. The American squadron commander replied, "We know." The Swiss came back with the warning, "If you continue we shall have to open fire." The American reply was "We know." At this point the swiss opened fire. The American leader radioed back, "You're firing too low." The Swiss reply was "We know."

But, back to Paulette Goddard. On the evening of note a special closed meeting at the tavern was arranged. The group invited included Erich Remarque, his friend Paulette Goddard, Baron von Schertel, a Swiss munitions executive and his live-in friend, an ex-German industrialist of World War II, an Austrian brain surgeon, Professor Wienblum, Phil Eisenberg and me. And so began our evening with Paulette Goddard, highlighted with good food, good wine and good conversation. The most interesting discussions related to the world's post-war problems of 1953. Of all those present, Paulette had the least to say but because of her beauty and reserve, she added much sparkle to the evening. So much so that I have always remembered this event as a momentous occasion. To say the least, if we could have transmitted our conclusions of the evening to our respective country leaders, the political process of the 50s would have been materially expedited. I also think the group would have voted an "Oscar" for Paulette that evening just based on her quiet charm.

Our report to the Secretary of the Navy did not dwell on the events of this particular evening. However, this trip was the U.S. Navy's first post-WWII look at hydrofoil development in Europe. A recommendation was made for the U.S. Navy to purchase one of the Supramar craft for evaluation. At that time, the price was most attractive, \$45,000 delivered in New York.

*NOTE: Any member that has a hydrofoiler story to tell should send it to the Editor.*



*The fast ferry Monostab, built by Rodriquez shipyard in Messina, Italy, features a stabilization system designed by Dornier that affords a high degree of passenger comfort at high speeds*

### MONOSTAB FEATURES STABILIZING HYDROFOILS

As a follow-up to an article in the last issue of the Newsletter on "Monostab -- A New Type of ship Featuring Stabilizing Foils from Dornier," a picture of the ship is provided. The exposed portion of the foil is shown at the aft end of the vessel. This picture appeared in the May 1990 issue of *Marine Log*.

In a cooperative effort with the Italian shipyard Rodriquez, Messina, the Freidrichshafen-based Dornier GmbH, a Deutsche Aerospace AG company, has developed a novel ship stabilization system for the technologically innovative *Monostab*. Successful tests of the system have been under way in the Mediterranean since the beginning of the year.

The *Monostab* concept offers an interesting alternative suitable for fast ferries where high speed, excellent passenger comfort and high efficiency are priority requirements. To comply with these demands, Dornier has developed and built so-called hydrofoils, which are sickle-shaped trapezoidal foils, fitted to crossbars at the left and right of the ship's stern. The crossbars, in turn, are pivoted on a hinged axis, parallel to the longitudinal ship axis. By means of actuators the two hydrofoils can be turned either up or down together for higher lift, or one foil can be turned up while the other is turned down for roll stability in heavy seas.

Several factors were key determinants for the design of the *Monostab* system. At high speeds and in smooth seas, a slender, semi-planing ship body changes early into a gliding condition. In rough seas it exhibits good immersion behavior. A controlled lift system at the stern offers excellent roll stability,

simultaneously reduces the ship's angle of incidence during cruising (less drag), and additionally permits the propulsion to be moved to the rear. The benefits include better utilization of the ship's space and a distinct reduction in noise.

All of these factors have led to an advanced new ship type of the 100 MP class. The *Monostab* features a length of 37 m, a width of 7.5 M and a capacity for approximately 350 passengers. Powered by two 16-cylinder diesel engines from MTU with a combined rating of 3,810 kw, the *Monostab* reaches a cruising speed of 35 knots.

As a result of its extensive experience with the processing and application composites, Dornier was given the task of hydrofoil design and development. Using modern computational methods, the engineers first conducted a feasibility study of the hydrodynamic design. This study revealed that large sickle-shaped foils offer good dynamic performance only when they are custom-tailored from carbon fiber reinforced plastic (CFP). As a structural concept Dornier favored a multi-spar structure with CFP skin laminates. Based on a prefabricated substructure, the hydrofoil was shaped in several stages starting from the inside and advancing to the outside until the final foil contour was attained. After grinding the hydrofoil surfaces, a special seawater-proof epoxy filler was applied. Anti-fouling paint to prevent algae growth was also applied at the shipyard.

Dornier reports that the *Monostab* design has proven successful in measurement trials in the Mediterranean under various load and sea state conditions, and the appropriate Italian authority has begun with the ship acceptance and approval procedure.

# THE NEWSLETTER

INTERNATIONAL HYDROFOIL SOCIETY  
P. O. Box 51 • Cabin John, Maryland 20818



Editor: Bob Johnston

WINTER 1990

Production Editor: Patsy Jackson



## SEASONS GREETINGS

*The Society sends Seasons Greetings to all its members  
with best wishes for a healthy and prosperous 1991.*



## IHS WINTER MEETING

Friday, 18 January 1991

Tom Coker and John Monk will tell us all about "PHM HYCATS Improvements/LINK-11." Details later.

## INTER-SOCIETY HIGH PERFORMANCE VEHICLE CONFERENCE AND EXHIBITION

June - July 1992

A call for papers will be coming out soon. Start planning yours now!!

\* \* \*



The IHS needs a new Logo. The current logo does not represent the *International* flavor of the organization. It is the old North American IHS logo. The Board has decided to have a contest for the best new Logo. It must be readable in a 1½ x 1½ size for a new letterhead. Prize is yet to be decided, but get your entry in by 15 March 1991. Mail to Patsy Jackson, IHS, P. O. Box 51, Cabin John, MD 20818.

### MEMBER NEWS:

There is nothing new to report about Jim Schuler's recovery. He continues to be about the same as reported earlier. He would appreciate notes, cards and visits. Please contact Marie at 301-649-2286 before visiting. Jim's address is: 807 S. Belgrade Road, Wheaton, MD 20902 USA.

Juanita (Kalerghi) Rothman reports that she is doing well after a severe bump on her head. She and Nat are planning to again spend the winter months in South Africa.

Dott. Ing. Leopold Rodriguez, past president of our Society, spent a month in Boston, Massachusetts. It was not a vacation, but a period of medical treatment and examinations. As he prepared to leave for his home in Messina, Italy, he reported that all had turned out fine and was eager to get back to his consulting and teaching.

John King reports a new vocation. He is now a producer of golf clubs. If you want to take a few strokes off your game, see John.

Bob Johnston's new right hip works so well he is giving himself a new left hip for Christmas! He has ordered one that will add 20 yards to his golf drive.

Condolences to Patsy Jackson whose father passed away on October 1st in Tennessee.

## FRESH 1

Built by the Boeing Company in 1961 and launched in 1963, FRESH 1 was built for the purpose of studying various super-cavitating foil systems and utilized a large turbo-fan engine for power. The catamaran hull design provided great versatility for the placement of the foils in either the airplane, canard, or tandem arrangement.

In the years since it was sold by the U.S. Navy, it has known different owners, but has never seen operations as a vessel again. For several years it rested on dry land near the battleship USS MISSOURI (BB-63) with the "mothball fleet" at Bremerton, Washington.

The present owner, who hopes to someday restore it to operating condition, had it placed on a flat bed trailer and has been trying to find a suitable location away from the public where it can be stored and worked on. In the last year it has been sighted at various locations about the outskirts of Bremerton. FRESH 1 is shown in her present condition "tied up alongside" an auto accessories store on the westside of Bremerton. For an old girl that has been better days, she still gets around -- above the waves!

*(Submitted by Dave Kaeser)*



*FRESH 1 as it looks today*

## THE NEED FOR FAST PATROL BOATS

In the October 1990 issue of "The Naval Institutes Proceedings" Captain Victor A. Meyer USNR presents an argument for the need of fast patrol boats based on the recent events in the Persian Gulf. He further suggests the manning of these boats by the Naval Reserve. The Naval Reserve has a historic involvement in fast patrol boats such as the patrol torpedo (PT) boats of World War II and more recently patrol gunboats that support special warfare units.

Reservists comprised 98% of the PT boat crews and today account for 55% of the special boat units.

This flexibility and adaptability (some would say expendability) of fast patrol boats in undertaking risky missions would seem to be exactly the attributes the U.S. Navy would seek as it tries to restore balance to the fleet in the area of low-intensity conflict. Patrol boats have not found favor in the U.S. Navy, however. In this attitude the U.S. Navy stands alone; other navies of the world have developed fast patrol boats. The only U.S. Patrol boats currently operational are the six hydrofoils (PHMs) of the PEGASUS (PHM-1) class, which were developed in the 1970s and only procured by the Navy under heavy pressure from Congress, and the 18 patrol boat (PB) Mk IIIs, which were developed for the Vietnam War and delivered in the early 1970s. These craft have served useful roles, most notably the PBs in escorting tankers in the Persian Gulf and the PHMs in interdicting drug traffickers in the Caribbean.

The reserves would respond to this mission enthusiastically. The chance to operate a fast patrol boat on missions of national importance is a strong motivator. Many reservists already have small-boat experience of one type or another. Incentives such as 60 paid drills (already standard in many hardware units), more special active duty, and high potential for promotion would foster cohesion and readiness.

Given good boats and adequate support, Naval Reservists would welcome the opportunity to abandon the drill hall for the pulsating deck of a fast patrol boat. We have trained manpower, a rich heritage in fast patrol boats, and an urgent, unfulfilled mission.

## PLAN UNVEILED FOR FOIL-ASSISTED CATAMARAN

In June the biennial shipping exhibition "Pogidonia" was held at Piraeus, Greece. This event is primarily a big ship market, however, this year there was an increase in the interest in the fast ferry market. Several new fast ferry projects were announced, among them a joint development agreement between Vosper International and McTay Marine of the United Kingdom. This agreement addresses plans for a series of fast catamarans including a foil assisted concept.

## FOIL CAT 2900

Hardanger Sunnhordlandske Dampskipsselskap (HSD) of Bergen, Norway has undertaken a number of changes in their fast ferry fleet. Over a six month period, this operator has sold a Westamarin built S80 monohull and a mixed cargo/passenger catamaran, a Westamarin 86. They also leased two catamarans -- a Westamarin 88 and a Westamarin 95 and placed an order for a Westamarin Foil Cat 2900, a foil assisted catamaran. HSD is now considering where the service speed of up to 50 knots can be most effectively utilized. One possibility is an express service linking Leirvik, Rubbestadneset, Storebo and Bergen.

## A STATUS REPORT ON PLAINVIEW

by Dave Kaeser

Recently, I drove to Astoria, Oregon to spend a couple of days on vacation and to see the hydrofoil PLAINVIEW (AGEH-1) again. It had been 15 years since I had last set foot on her decks as a crew member, and through contact with the staff of the Columbia Maritime Museum in Astoria, I had learned the ship's exact location. The ship had been sitting on the beach for 10 years, in plain sight and easy access to the public. Since all of her struts and most of her foils were gone, nearly everyone I talked with had no idea that the ship had once been a hydrofoil, or that she was the largest naval hydrofoil in the world. PLAINVIEW had been purchased at auction ten years prior by Lowell Stambaugh for \$150,000 which was \$32,000 less than Levin Metals Corporation of San Jose, CA had originally paid the U.S. Navy for it in 1979. Mr. Stambaugh had the ship towed into Youngs Bay and backed stern first onto his private waterfront property, which is adjacent to his Columbia Boatworks and next to the Birdwell Ford dealership on Highway 30, just southwest of town.

I resisted the temptation to climb up aboard PLAINVIEW right away, and was content to survey the hull and superstructure from ashore. Since there was a low tide at the time, this proved to be no problem at all. Taut cables and lines, lashed to several pilings to the portside of the ship, kept her from rolling over, but still she rested at a list of about 25° to starboard. Along with the struts, foils, torpedo launchers, and diesel engines, the two General Electric LM-500 gas turbine engines had been removed before the ship was transferred to Inactive ships in Bremerton, Washington. I could easily see where the cutting torch had done its job in the removal of the struts, leaving only small sections where they couldn't be uncoupled from the ship.

On the after starboard quarter, there was a rough gash in the hull approximately four feet long. Apparently, the hull had crashed into one of the numerous short pilings in the area while it was being pushed ashore. Considering the length of time the ship had sat neglected on the beach, the hull looked better than I had anticipated. The new stern foil, installed when PLAINVIEW underwent overhaul at Todd Shipyard in the late 70's, was secured on the fantail deck. The hull numbers had been removed from the bow, so only the name in raised lettering welded across her stern gave hint to her identity.

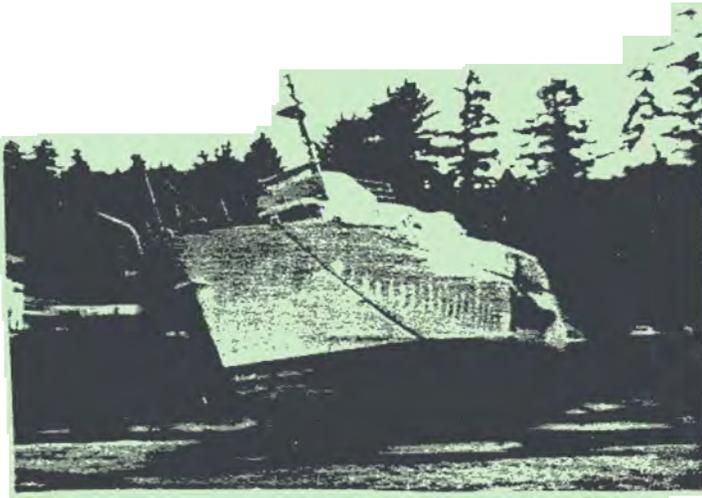
The following morning I paid a visit to the Columbia Maritime Museum and gave them various items, pictures, and video taped films that had been donated by several former crew members of PLAINVIEW, and by Jim Mason and Don Rieg, formerly of HYSTU. We discussed the ship at length as the staff was interested in learning more about the hydrofoil sitting on a mud flat nearby. Having been

given the owner's address and phone number, I decided to pay a call in person, only to find out from the caretaker that he was out of town for awhile. After introducing myself and stating my reasons for the visit, I was given permission to go aboard PLAINVIEW -- at my own personal risk. Needless to say, I jumped at the chance. With an afternoon of excessive low tide scheduled, I hurried back to the ship.

Properly attired for the hot and dirty work ahead, with flashlights and cameras in hand, my oldest son and I scaled the stern strut access area and climbed the short ladder from the hydraulics system to the fantail. Walking about the deck was like trying to navigate the slanted floor of a fun house. Going up and down vertical ladders proved to be tricky also. Traversing the fantail, we made our way up the port side ladder to the 01 level. Opening the access hatch cover above the hydraulics area for the port strut, we could see where the strut had once been connected and had been separated by the cutting torch. At the forecabin, we climbed down into the empty Boatswain's Storeroom, which we found, like much of the other areas below decks, was in relatively good condition. In the next compartment, the Anchor Windlass Room, we found the anchor windlass still intact.

Much of the inside of the ship had been previously stripped by the Navy. All major communications, navigation, electronic and other instrumentation systems were gone except for the four banks of data relay systems in the after end of CIC, that had been used for recording data inputted from sensors throughout the ship. The dashboard instrument panel in the Pilot House was gone, along with the throttle controls between the Pilot and Copilot's seats. And, the seats were gone too. The overhead bank of switches were still intact, as was the Pilot's steering wheel. Moving aft on the 01 level, we entered the Foam Generator Room and found the generators still there.

Going below decks, we found in the OIC's stateroom that the reversible couch and bed was still in place, as were the bunks in the XO and JO bunkrooms, along with sinks, cabinets and dressers. However, all of the bunk springs had been removed. In the Enlisted Berthing area, only the one set of bunks in the CPO area was still standing, while the rest of the compartment had been emptied of bunks and lockers. And yet, in both the Officer and Enlisted Heads, paper towels were in their dispensers (as were rolls of toilet paper) as if they were still being used. The Wardroom and Mess Decks were empty of furnishings, and only the aluminum counters and cabinets indicated what the Galley had once been. Throughout the ship, the electrical and interior communications cables were still strung along the overhead, and lights and their switches were in place. I felt that all I had to do was flip on the nearest light switch and the darkness would be gone.



The Motor Control and Relay Center in the Main Exhaust Room, as well as the electrical power panels and breaker boxes throughout the ship were still there and "red tagged" as if waiting for an electrician to make the necessary repairs. In the Electronics Equipment Room, below the Galley, the glass porthole used to view the port strut and foil during foilborne operations was still intact and secured. In the Air Conditioning Machinery Room, the system that normally cooled the living spaces was still there.

Making our way further aft, we found the areas on the main deck level much as they have been before. But it came as a minor shock to step down into the Main Engine/Turbine Room and see the large empty foundations where the turbines had once been.

Continuing aft into the Air Compressor Room, and the access hatches to the Transmission Room and Diesel Engine Room, we climbed down into each space and checked the conditions there. We found the Engineer's Console still there, but there were gauges and switches missing, broken gauge glasses looked back at us, and the seat in the console was missing as well. The Diesel Engine Room was a litter of pipes and fittings, as if someone had done a hurried job of removing the diesels from their foundations. Although the outdrives had been removed, as well as the diesel engines, in the Fire Pump Room below, we found the shafts that connected the two were still in place. Returning back to the stern, we noticed that the camera housing boxes used to film the struts and foils during foilborne operations were still in their places, as were the boxes positioned on the 01 level above the port and starboard struts.

What does the future look like for PLAINVIEW? The owner has had several plans for the ship, such as converting her to a fast fishing boat (but she uses too much fuel). So, she continues to sit on the mud flat -- which may not be for long. Birdwell Ford recently bought the Columbia Boatworks building adjacent to PLAINVIEW, and is planning to buy the property she is sitting on to expand their already overcrowded lot.

Also, there are plans by the City of Astoria and the State of Oregon to widen Highway 30, which will also impact the immediate area. If these plans become reality, then PLAINVIEW will be towed off of the mud flat to be anchored or beached once again on private property near Naselle, on the Washington side of the Columbia River.

### FJELLSTRAND'S NEW CATS

Another leading Norwegian designer/builder of fast catamaran ferries, Fjellstrand, is now part of the large multi-disciplined Kvaerner group. Over 50 vessels have been delivered to 18 countries since 1976 range in lengths from 26m to 40 m.

Last year the company launched a new 40m version of its successful 38.8m Advanced Slender Catamarans, benefitting from a refined wheelhouse layout, interior modifications and improved seaworthiness. This aluminum-hulled Flying Cat design is powered by twin KaMeWa waterjets driven by MTU engines for a service speed of 37 knots.

The first example was delivered in April to a Norwegian operator. A Flying Cat with capacity for 272 passengers is booked by a Thai company for a 65 nautical mile tourist/ferry service between Bangkok and Pattaya. The vessel, which should cost around \$7 million, will be built at Kvaerner Fjellstrand's Omastrand yard in west Norway for delivery in December. Flying Cats will also be built at the group's new Singapore yard from next year.

The Norwegian yard will specialize in the production of Fjellstrand's latest concept, the FoilCat, which is claimed to offer the best characteristics of advanced catamarans with the high speed of foilborne vessels. It is described as a low-flying catamaran supported by foils, combining dynamic lift and displacement.

Newly developed foil technology and stabilizing systems reportedly allow the FoilCat to "fly" at a service speed of 50 knots with economy and passenger comfort; motion in rough waters will be reduced by 60-70% compared with a traditional catamaran, Fjellstrand claims. A key factor in determining passenger comfort is the vertical acceleration. In a seaway the new stabilizing system "will efficiently regulate the lift generated by the foils, drastically reducing the acceleration level."

The designer also suggests that model tests have proved the FoilCat offers radically improved transport efficiency (power for a given speed) at higher speeds than other fast craft. The dynamic lift generated by the foils allows for an extremely slender above-water shape of the hulls. When operating in waves the added resistance will be very low compared with other vessel types, promoting superior speed maintenance in bad weather.

The 40.55m long/12m beam FoilCat will have maximum loaded drafts of 4m (hullborne) and 2m (foilborne). Seating for 414 passengers can be arranged on main and upper decks. The propulsion plant comprises twin KaMeWa waterjets powered by

General Electric LM500 gas turbines. The take-off speed (when the hull is completely out of the water) is around 35 knots. A cruising range of 300 nautical miles is promised at the service speed of 50 knots.

The prototype FoilCat will be fully tested for six months before delivery in 1992. A likely first customer is Seattle based Clipper Navigation which operates three round-trips daily to Victoria using a Fjellstrand catamaran and another craft. The FoilCat is designed to compete against the Kawasaki-Boeing Jetfoil which, according to Fjellstrand, costs around \$17-20 million.

### **GENERAL ELECTRIC'S LM5000 GAS TURBINE**

The increased size and speed of hydrofoils and the advent of large foil augmented catamarans call for more power. One possible source of that power is GE's newest marine gas turbine, the LM5000.

The LM5000 marine propulsion plant is capable of turning out 50,000 bhp -- almost double the output of GE's current LM2500 marine gas turbine. And the LM5000 provides such power from a simple, compact, modular engine design, with high thermal efficiency (38%) and low fuel consumption and airflow per horsepower. Full power can be achieved in 90 seconds, from key turn through engine start-up.

The unit is the marine version of the LM5000 industrial gas turbine, which in 1977 was derived from GE's CF6-50 aircraft engine -- the "Dash 50." The CF6 engine family, offering 40,000 to 61,500 lbs of thrust, was introduced in the early 1970s to power short- to medium-range commercial jetliners, including the McDonnell Douglas DC-10, Airbus Industries A300 and the Boeing 747 aircraft. The engine's experience and reliability were also accumulated from the parent aircraft engine, the CF6-6, and its sister aeroderivative, the LM2500 marine gas turbine.

It's interesting to note jetline experience of "aeroderivative" gas turbines, because of the stringent safety and maintenance cost requirements of commercial aircraft. Engine core components must be designed for maximum reliability and life, even when subjected to severe temperature, pressure, and speed conditions experienced during aircraft takeoff.

With its 30:1 overall compression ratio, the LM5000 marine gas turbine achieves an average simple-cycle thermal efficiency of about 38%. That compares to 37% for its sister aeroderivative LM2500.

### **"MARINIZING" THE LM5000**

"Marinizing" a gas turbine -- fitting it up for marine environments -- requires the use of appropriate corrosion-resistant base materials and use of suitable coatings when needed. U.S. Military specifications for aeroderivatives require use of corrosion-resistant materials for components, with tests to verify such corrosion resistance. Resulting base materials, once approved, set the standard for adapting a gas turbine, such as the LM5000, for marine service.

Internally, parts that bear the brunt of marine gas turbine operation are usually hot-section parts, enduring corrosion from intense firing temperatures (in excess of 2,300°F). While the LM5000 has inherently corrosion-resistant base materials, hot section parts are specially coated for marine service.

The three-stage power turbine was originally designed by GE for the U.S. Navy 3K (3,000 ton) SES program. The power turbine remains essentially as designed, except for a few changes for improved production, materials availability and cost reduction.

On the basis of 410,000 cumulative service hours, the industrial LM5000 has achieved mean time between engine-caused unscheduled removals of more than 10,000 hours. Perhaps no other power plant on the market can turn out 50,000 bhp in as simple, lightweight and thermally efficient a manner as the aeroderivative LM5000 marine gas turbine.

The power of the LM5000 makes it suitable for high speed applications. Kvaerner-Eureka of Oslo has recently shown its potential in the high speed ferry market. It has ordered two of the marine gas turbines to power its FoilCat-class passenger ferries. Delivery of these turbines is scheduled for February of 1991, and sea trials of the craft are to begin later that year.

### **FAST FERRY DIRECTORY 1990**

For the first time, Fast Ferry International has published their 1990 Directory separately from the magazine. A fast ferry is considered to be a vessel capable of carrying a minimum of 50 passengers at a full load speed of at least 25 knots. The Directory lists details of all companies worldwide operating fast ferries, or awaiting deliveries as of the end of August 1990. It also describes their fleets and routes.

155 companies are listed which is 15 less than last year due mainly to mergers. 562 vessels are detailed as active. When the vessels on order are included, the total exceeds 600. This does not include USSR operators as few details of the craft involved on these routes were available.

Of the 562 vessels on active routes, 225 are hydrofoils. This is an increase from 209 in 1989.

### **AEPCO, Inc. TO INSTALL MINI-NTDS ON PHMs**

John Monk writes that Advanced Engineering and Planning Corporation, Inc. (AEPCO) has been awarded a \$4.15 million contract to install a miniature, naval tactical data system on the PHM Class of U.S. Navy hydrofoils. The task is scheduled to be operationally functional in 14 months.

### **REPEAT ORDERS FOR KAWASAKI JETFOILS**

Kawasaki Heavy Industries has confirmed that it has received repeat orders for Jetfoil 929-117 hydrofoils from three operators. A 232 seat version is due to be delivered in January to the Kyushu Railway Company for a 115 mile route between Hakata and Pusan in Korea, a 262 seat version in April to Sado Kisen Kaisha for its 36 mile route between Niigata

and Ryotsu, and a 286 seat version in May to Compania Trasmediterranea for its 52 mile route from Las Palmas to Santa Cruz and 60 mile route from Las Palmas to Morro Jable.

Sado Kisen Kaisha added the first Jetfoil 929-117k built by KHI to its fleet of two Boeing 929-115s and one 929-100 in March 1989. This year, the Kyushu Railway Company introduced a 235 seat version, *Beetle*, on its 81 mile Hakata-Hirado-Nagasaki Hollands Village route in May and Compania Trasmediterranea took delivery of a 286 seat version, *Princesa Dacil*, at KHI's Kobe yard in July. The first KHI Jetfoil to be exported, this is due to enter service in the Canary Islands this month.

Prior to *Beetle* and *Princesa Dacil*, KHI delivered *Pegasus* in March to Kyushu Shosen. A 265 seat version, this entered service the following month between Nagasaki, Fukue and Narou. Route distances are 61 miles from Nagasaki to Fuke, 20 miles from Fuke to Narou and 49 miles for the direct route from Narou to Nagasaki.

The fourth and final Jetfoil delivery this year, scheduled for this month, will be a 233 seat version ordered by the Higashi-Nihon Ferry Company for a 61 mile route linking Aomori and Hakodate. KHI's other outstanding order is from Kyushu Yusen for a 263 version to be delivered next March and introduced on a 41 mile route from Hakara to Iki Island.

Six Jetfoils have now been delivered by KHI since March last year and the latest orders increase the number to be launched by next May to eleven. When the 929-100, 929-115, 929-119 and 929-120 variants built by Boeing Marine Systems during 1974-86 are included, total Jetfoil production will have then reached 39 vessels.

### RHS150F DELIVERIES

Aliscafi SNAV has also introduced two 161 seat Rodriquez RHS 150F hydrofoils this summer. Built in Messina, Salina and Panarea are operating between Milazzo on the north coast of Sicily and the islands of the Eolian archipelago.

Their aluminum alloy hulls were fabricated using 5086 plate and 6082 UNI 3571 TA16 angle sections and the foils using high resistant steel. Draught is 3.18m hullborne and 1.28m foilborne. Two MTU 12V 396 TB84 diesels give the hydrofoils a cruising speed of 35 knots.

### JETFOIL PRODUCTION CONTINUES

Two licensees continue with the production of the Jetfoil hydrofoil designed by Boeing. Production of these vessels ceased there in the mid-80s when Boeing elected to redirect a substantial portion of its Marine Systems resources to serve traditional major Aerospace product lines.

The two companies: P.T. Pal Indonesia and Kawasaki Heavy Industries, Ltd., are each currently addressing separate segments of the high speed market. Kawasaki is also providing operator support

for the commercial fleet under a separate agreement with Boeing.

P.T. Pal Indonesia, the national shipbuilding company, located in Surabaya, Indonesia is presently completing two non-commercial versions of the Jetfoil, based on designs supplied by Boeing. Initially two of each of the configurations will be employed in various maritime roles by the government in Indonesia.

Kawasaki has delivered several of the hydrofoils for commercial passenger transport to existing owners as well as to new Japanese operators. Included in the deliveries made by them is one Jetfoil in a striking all-black color, used for service to a resort area there.

### HIGH POINT UPDATE

As many of you know, PCH-1 HIGH POINT was transferred to the Naval Inactive Ship Maintenance Facility, Bremerton, in May of 1989 and put on "The Block." The following March she was sold to Command Commodities of Chesapeake, VA. In a recent conversation with Hal Ward of Command Commodities, he related that the Rolls Royce engines and other equipment had been removed from HIGH POINT before he resold her. The RR engines were crated, but a deal to sell them fell through, so Command Commodities still has them in Chesapeake, VA. HIGH POINT's current owner (as of this writing) is Fraiser Enterprises, Portland, Oregon. "The Queen" is still in Tacoma, WA at a pier with stern-drive and diesel engine in place. Also, the struts and foils are intact. Hal Ward is obligated to remove the latter from HIGH POINT whenever the ship is drydocked so as to make this possible. It has been reported that Frasier doesn't want the struts and foils on her. We will keep all readers informed as this exciting hydrofoil event unfolds. John Meyer has been following up on this.

### RODRIQUEZ FOIL ASSISTED MONOHULL ENTERS SERVICE

Rodriquez Cantieri Navali's first foil assisted monohull, the 37m *Peroni*, entered service in Italy with associate company Aliscafi SNAV on its routes from Napoli to Capri and the Ischian port of Casamicciola in April. Originally christened *Monostab*, the 350 seat twin-deck vessel was built in aluminum alloy by the Baglietto Shipyard, another company in the Rodriquez group, in Varazze.

The foil assisted monohull concept is based on a semi-planning hull, featuring a slender bow form to reduce wave resistance, fitted with an automatically controlled surface piercing foil system aft for transverse trim and flaps for longitudinal trim. Because the main engines are located at the stern, the centre of gravity is also further aft than is usual on a monohull.

Indirect advantages of the concept cited by Rodriquez are a reduction in bow slamming due to the longitudinal trim angle being close to zero and a reduced chine width, lower noise levels in the passenger salon due to the aft position of the engines

and the potential to fit waterjet propulsion, and adaptability to different local conditions and changes in the position of the centre of gravity due to the action of the flaps.

The surface piercing foils, the company reports, have a high efficiency because of the large stabilizing arms and the fact that they are operating in an area where the flow of water is practically undisturbed. The full span flaps at the transom also free them from control of longitudinal trim, something described as "a rather demanding task at low speeds." Because they are stabilizing only rolling motions, the foils can consequently be made smaller and lighter.

Also, due to their high aspect ratio and full span configuration, the flaps "develop lift with an unbelievably high efficiency causing the slender hull bottom not to assume a high positive incidence and hence lift."

The stabilization augmentation system is run by a 16-bit digital computer based on a Motorola M68000 processor. The main motion sensors are a vertical gyroscope and a set of accelerometers. A control and command panel on the bridge provides the link between the stabilization system and the captain. Should it be required, manual operation is also possible.

#### Rodriguez 37m foil assisted monohull

Length overall	37.00m
Length waterline	30.00m
Moulded breadth	7.50m
Moulded depth	3.50m
Draught	1.15m
Displacements	
- Lightship	88 tonnes
-50% payload	113 tonnes
-Full load	125 tonnes
Passengers	350
Crew	8
Capacities	
-Fuel	6,000 litres
-Fresh water	1,000 litres
Speed	36 knots
Engines	2 x MTU 16V 396 TB84
-mcr	1,920 kw at 1,940 rpm
Waterjets	2 x Riva 1RC 82 DLX

## WELCOME... NEW MEMBERS

### Barney C. Black (Alexandria, VA USA)

Mr. Black furnishes engineering support to Navy PHM-1 Class program office.

### Arlyn Harang (Seattle, WA, USA)

Mr. Harang was part of the Boeing test team on PCH (MOD-0) starting in 1966, control system design and underwater test team for all PHMs; Captain of PCH for her last two years; part of Boeing team supporting PHMRON TWO.

### KathyAnn I. Presutti (Alexandria, VA USA)

As a support contractor for PMS314, KathyAnn has supported the PHM-1 Class ships for two years. The prior three years she supported the SEA 503 Ship Design Manager for the PHMs.

### Mark Rice (Washington, D.C., USA)

Mr. Rice is interested in hydrofoil propulsion, hybrid hull forms, and hydrofoil applications.

### Dr. Al Ross, II (Bangor, ME, USA)

A naval author, Dr. Ross is currently doing research for a book on hydrofoils. He contributed a drawing to *The Flying 400* by Tom Lynch, and also wrote an article on PHMs in "Warship 1989."

### Hal Weiland (Seattle, WA, USA)

Mr. Weiland is an engineer at Boeing Aerospace Operations -- the expanded planning yard for the U.S. Navy hydrofoils. For the past three years, he has been involved with design of improvements to the PHM combat systems.

## CONSULTATION ANYONE???

Interest in foil-supported ferries has increased in recent times. Other commercial applications are possible as well. Some of the companies designing systems for hydrofoil applications may have limited experience with hydrofoils. The professional experience of some of our members, who are available for consultation, could be of interest to them. As a result, the Board has decided to:

- (1) Provide an opportunity for members to submit a work experience resume to the IHS for transmittal to corporate sponsors and to other companies upon inquiry.
- (2) Provide an opportunity, by notice in the Newsletter, for companies involved in hydrofoil system design to request resumes of members having design, fabrication, or operational experience.

In order to implement Item (1), we are including a form with this newsletter for completion by those members of IHS who are interested in making their work experience and availability known. Unless you specify otherwise, copies of your resume will be forwarded to corporate sponsors and other companies or agencies expressing an interest in members' work experience.

*The sport of football teaches young boys a valuable lesson. The minute somebody gives you something, 11 other people are going to try to take it away.*

\* \* \*

*Why are they called the "Golden Years?" Because nobody can afford them.*