

Vol 1
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THE

GOOSE GAZETTE

volume 1

number 4

summer

1974

PROMOTING LORAN-C

Successful promotion of LORAN-C is a two parameter problem - the first is technical and the second, political. Since the parameter of most current interest is political, this report will touch only briefly on the technical. No matter how impressive our handling of the politics may turn out to be, we will ultimately fail if user equipment perpetuates the reputation of the past. Therefore, lest we forget, user equipment offered to those who would use the LORAN-C service must be functionally, electrically and mechanically reliable. Additionally, user equipment must include an attractive, simple, useful human interface, and the equipment must produce an output which is meaningful with respect to the user's application. For example, aircraft pilots cannot be expected to give a very high "usefulness" rating to TD boxes, although navigators might disagree. To cope with this technical problem, the Association might consider publishing a set of standards for various classes of user equipment and issuing a Wild Goose Seal of Approval to those products which meets the standards. (Excerpt from 16 January 1974 Report to WGA Board of Directors by L. Fehlner.)

AWARENESS BENEFITS BOTH PUBLIC AND COAST GUARD

BY W. ROLAND - STAFF WRITER

On February 8, 1974, the U. S. Coast Guard established a LORAN-C Public Awareness Program. The program was setup to bring LORAN-C to the attention of civil maritime groups, such as the fishing industry, offshore industry, cruising clubs, recreational boaters, and the merchant marine. In view of the national effort to provide LORAN-C coverage in the coastal confluence region, and the modest past P. R. efforts, there

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LORAN-C WORKSHOP

DEPARTMENT OF TRANSPORTATION - U.S. COAST GUARD • IN COOPERATION WITH THE WILD GOOSE ASSOCIATION

BY BILL REVEILLE

Gettysburg, Pa. The LORAN-C workshop was held at the Sheraton Inn on June 5, 6 and 7.

The workshop was conceived in the same spirit of soliciting advice and participation in the long-range planning of LORAN-C. Its objectives were to provide a means for the professional community of radio navigation users, and those providing technical support, to participate in defining problems and recommending solutions related to the implementation of LORAN-C. These recommendations were based on the plans for the implementation of the system for the CCR, harbors and estuaries of the United States. Workshop efforts included user equipment requirements, charting, new applications and needs of specific users.

The Shearton Inn in Gettysburg, Pennsylvania was selected as the site for the workshop for 5, 6, and 7 June. It was felt that Gettysburg is close enough to Washington to allow ready accessibility by the participants--the distance is about 85 miles--but far enough away to prohibit attendee's returning home each evening. Thus, a close and prolonged contact and active exchange of ideas among the attendees was assured.

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Julius Collins (Texas Fleet Owner), Robert Merriam (Merriam Instruments), Bob Mauermann (Texas Shrimp Association), and George Snow (Louisiana Shrimp Association) at the LORAN-C Workshop. (Photo by Steve A. Saff, Asst. Editor, National Fisherman)

CURRENT HYPERBOLIC NAVIGATION STATUS

LORAN-A

DOD has changed its requirement for the LORAN-A system operation from the end of 1974 to the end of 1977, except for Baffin Bay. This assumes that a world wide replacement system such as Omega is operating in the areas concerned. The planned termination dates for the U. S. operated LORAN-A chains are:

Domestic

Aleutian Islands	July 1, 1979
Gulf of Alaska	July 1, 1979
Hawaiian Islands	July 1, 1979
West Coast	July 1, 1979
Caribbean	July 1, 1980
East Coast	July 1, 1980
Gulf of Mexico	July 1, 1980

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THE GOOSE GAZETTE

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EDITORIAL

On the eve of our Third Annual Convention, it is fitting to reflect upon the progress accomplished since the foundation of the Wild Goose Association.

We might do well to read the charter of our organization and consider the ways in which the actions of the directors and members have contributed to the furtherance of our goals. Ours is a young organization in a society overpopulated with technical and scientific organizations, and many of us have often felt that we tread a delicate line in trying to be truly innovative without overstepping the functions and purposes of other groups in the navigation community. We are often derisively compared to larger organizations who by virtue of their technology and general endeavors may attract numbers in the thousands rather than the few hundreds that we presently count.



CLAUDE PASQUIER

Thus, it is tempting to pursue a policy of ever increasing membership in order that we might become more effective in meeting our goals. Yet the moderation of some directors has prevailed over the assumption that in numbers there is strength.

I feel that our greatest asset is not in a large membership, if only for the sake of numbers, but rather a representative membership for the sake of better exploitation of the system with which we have become identified. As seen elsewhere in this issue, the dedicated membership of the organization superbly supported the U. S. Coast Guard in bringing about the first practical merge between the producing community and the user community. These efforts led by WGA members Leo Fehlner, Bill Roland, Ed McGann, John Beukers, and Bill Mohin, to name but a few, have succeeded in putting into practice unification goals much discussed but never attempted.

Seldom has the Loran community benefited so much from these efforts as it has in the case of the hearings of the sub-committee of Coast Guard and Navigation chaired by the Honorable John M. Murphy. The participation of representatives of the WGA along with such eminences as Admiral Bender, Commandant, USCG; R. Admiral Moreau, Chief, Office of Engineering, USCG; R. Admiral Cone, U. S. Navy; Dr. Whitehead, Director, Office of Telecommunications Policy, contributed greatly to a clearer resolution of the controversy over implementation of the Coastal Confluence Region Navigation coverage. The invitation to the WGA to testify at the hearings is a tribute to the enterprising efforts of Ed McGann, Chairman of the Congressional Liaison Committee.

The results of the hearings are now well-known and the implementation of the Loran 70's program is due in large measure to the hard work and arduous preparations of the WGA team for the hearings conducted on March 28, 1974, in Washington, D. C.

The LORAN-C Workshop held in Gettysburg, Pa., on June 5 thru 8, 1974, is described in the feature article. There again, a positive action was taken by Leo Fehlner as Chairman of the Workshop Liaison Committee with the USCG to bring to the user community a complete objective understanding of what the LORAN-C System could do for them. Here again, the intense preparation and dedicated work of the participants finally opened the doors toward free exchanges destined to achieve the desired communication between users and system designers and promoters.

Culminating the efforts to bring the LORAN-C System to the user community and aptly supplementing activities in Washington and Gettysburg, the Loran Awareness Program was launched in February 1974 by the USCG. This project gave maritime users an opportunity to see LORAN-C at work in several coastal districts and thus yielded substance to the claims while dispelling the controversy over the capabilities of LORAN-C. In retrospect, it seems strange that such a program had not been carried out any sooner. Certainly the hardware and the coverage were there and the determination to bring

LOST SIGNALS

Commander Tom Nolan, USCG CO OMEGA Navigation System Operations Detail USCG Hq succeeding Commander George Asche now CO USCG Base, Honolulu.

Robert L. Frank formerly with Sperry Gyroscope Division, Great Neck, N. Y., is now in private practice as Electronic System Consultant in Detroit, Michigan. His phone number is (313) 559-8208.

John D. Freitag, formerly President, Amecom Div. of Litton Systems Inc., College Park, Md., promoted to President, Data Systems Division, Van Nuys, California and also appointed a Vice President of Litton Industries Inc.

WGA RADIO NAV JOURNAL

At the latest WGA BOD's Meeting on Sept. 12, '74, W. Roland presented a tentative outline of a proposed journal on Loran. Mr. Bahar Uttam was introduced to the Board and his enthusiastic help in generating the outline is a credit.

The proposed outline is as follows:

Chapter	Title and Contents
1	Foreword
2	Introduction to WGA
3	Loran Concepts and Recent Published Papers
4	Loran Chain Information
5	System & Equip Info
6	Glossary of Loran Terminology
7	List of upcoming events

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THE PRESIDENT'S CORNER

LLOYD D. HIGGINBOTHAM



Another year has passed and the WGA has grown in stature. As most of you know your President and fellow WGA members Jim Van Etten, John Buekers, John Hopkins, Bob Bartlett, John Currie, Bill Polhemus, and George Roussel gave testimony to the Subcommittee on Coast Guard and Navigation of the Committee on Merchant Marine and Fisheries House of Representatives Ninety Third Congress, on March 28, 1974, and we would like to think that it had something to do with the CG and DOT announcement on 16 May that LORAN-C would be the system for the coastal confluence zone. I also want you to know that Keith Bruhl, Leo Fehlner, Bill Roland, Tom McCarty and Ed McGann did outstanding work in the coordination of this testimony. I would also like to report that I personally learned something about maturity. As you might expect, we had some knock down - dragout arguments during the preparation of the testimony but once on the witness stand your representatives were the epitome of objectivity and selflessness. I am proud to be associated with such men.

On June 6th and 7th your association co-hosted a LORAN-C workshop with the U. S. Coast Guard. Leo Fehlner will report on that effort during the technical session at the convention.

The convention marks the end of my service as your President. The past two years has been fun. I've made new friends, the organization is, I think, healthy and growing and I believe the WGA has indeed served the LORAN Community. I want to thank each and every one of you for your support and I know you will continue to provide the same to Jim Van Etten, our new President. You had a tough decision to make in electing a new President, but I'm sure that all who know Jim will share my confidence that he will do good things for the association and for LORAN. Thank you for letting me serve you. It has been a pleasure and an honor. Good luck to all of our members and friends and to our new President through the coming year.

EDITORIAL

Continued from Page 2

concrete operational evidence to the maritime users existed in many segments of the LORAN-C community. Sporadic efforts often termed marketing pursuits by industry had taken place with no substantial results and all too often with such parochial views that the user was left confused and unsure of the validity of the claims made by all. It is a great tribute to the Coast Guard and certainly Dave Haislip that such a program was finally carried out. The outcome has already proved beneficial to the LORAN-C expansion.

Now, as we convene for our third convention, we will see our new president, officers, and directors. We will meet new members as well as interested guests. Let us take this opportunity to pursue the objectives of the WGA and draw upon our recent accomplishments to map out our future.

CURRENT STATUS

Continued from Page 1

Overseas

Baffin Bay
Iwo Jima - Okinawa
Mariana Islands
Marshal Islands

June 30, 1975
Dec. 31, 1977
Dec. 31, 1977
Dec. 31, 1977

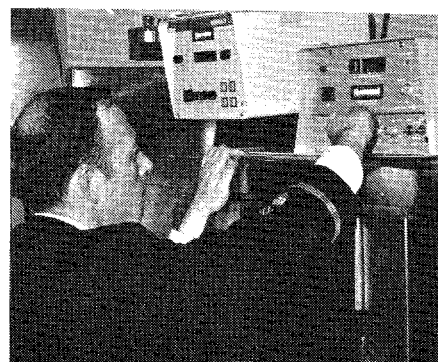
LORAN-C

The existing LORAN-C system will be upgraded and expanded to provide

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AWARENESS BENEFITS

Continued from Page 1



Chief Warrant Officer Jerry Murdock adjusts the Simrad and Raytheon receivers during a demonstration on board the Coast Guard Cutter Pendant, underway in Boston Harbor. Both receivers demonstrated 100 ft. repeatability throughout the harbor.

was a need to assure that the maritime public was well acquainted with the LORAN-C system and the Coast Guard's plans.

To accomplish this effort, a special temporary staff was setup in Coast Guard Headquarters under Mr. David T. Haislip. This staff was the source of information, documentation, press releases, and equipment for use in lectures and demonstrations. They did an outstanding job in an amazingly short time.

In the field, a program coordinator was designated in each Coast Guard District Office. His job was to arrange for lectures, talks, meetings, and demonstrations--both underway and static. The field staffs held press conferences, prepared press releases, and even arranged for radio and TV coverage.

Perhaps the most interesting and effective effort was meeting with and demonstrating to the various fishermen's organizations throughout the United States. These men, more than any others, depend on radio aids to navigation for their livelihood, and, therefore, have strong feelings about the various systems. Fishermen who are now using LORAN-A are able to squeeze far more performance out of the system than even the most optimistic marketer could claim. Yet, they are interested in the improvements possible with LORAN-C but conservative in making changes. There is no doubt though, that the lines of communication with the fishermen have been opened wide and taking their inputs seriously will benefit both them and the Coast Guard in not only this but many other programs as well.

The underway demonstrations carried out in the coverage area, provided an education not only for the public,

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ELECTION RESULTS - OCTOBER 1974



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AWARENESS BENEFITS

Continued from Page 3

but for many Coast Guardsmen as well. The LORAN-C sets that are available now provided an order of magnitude, greater reliability and obvious simplicity for the operator. This was indeed as important to the demonstrations as the system accuracy. In various harbors on the East and Gulf Coast, the repeatable accuracy was observed to be on the order of 100 to 300 feet. This was sufficient to permit some rather remarkable demonstrations of possible harbor navigation techniques.

The LORAN-C Public Awareness Program has made a tremendous contribution to the acceptance of LORAN-C, and at the same time has brought to light some rather pointed questions and comments from the maritime community. These questions and comments have been made a matter of record in the report of the LORAN-C Workshop held in June.

The public awareness program is now completed. It was an outstanding effort to honestly present information and plans to the public.

CURRENT STATUS

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coverage for the entire U. S. Coastal/confluence zone and the Great Lakes. Overseas stations will continue to be operated by the Coast Guard in response to the requirements of DOD. The planned dates for LORAN-C chain operational certification to provide coverage for the U. S. contiguous waters are:

West Coast	Jan. 1, 1977
Gulf of Alaska expansion	Jan. 1, 1977
East Coast reconfiguration	July 1, 1978
Gulf of Mexico expansion	July 1, 1978
Great Lakes expansion	Feb. 1, 1980

The Hawaiian Island chain is under study to determine if the existing LORAN-C coverage can be improved in the area of the major islands.

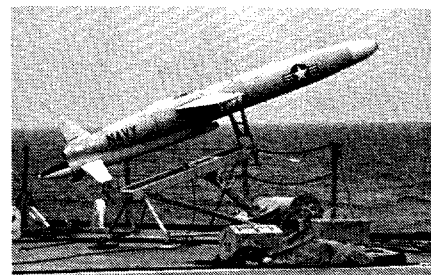
OMEGA

The OMEGA system currently has four stations: Station A at Bratland, Norway; Station B at Trinidad, West Indies; Station C at Haiku, Hawaii; and Station D at La Moure, North Dakota. Four additional stations are planned in cooperation with the respective host nations.

Overall system implementation is continuing under the direction of the U. S. Navy OMEGA Project Manager. The Coast Guard OMEGA Navigation Systems Operations Detail was established in 1971 and has operational responsibility for the Omega System. It is intended that the Coast Guard Operations Detail operate the system for the Navy pending total implementation.

The current status of the OMEGA system implementation and operation is:

STATION	ON-AIR DATE/PROJECTED ON-AIR DATE
Norway (A)	December 1973
Trinidad (B)	February 1966
Liberia (B)	September 1975
Hawaii (C)	September 1974
North Dakota (D)	October 1972
La Reunion (E)	December 1975
Argentina (F)	July 1975
Japan (G)	January 1975
Austraila (H)	TBD



Northrop's NV-128 RPV ready for launching during Navy amphibious assault operations (official photograph U.S. Navy)



Marty Day of Amecom and Darrel Welch of Northrop preflighting the AN/ARN-110 LORAN Navigation System prior to Launching. (official photograph U.S. Navy)

Atlantic Fleet Photographic Center, U.S. Naval Amphibious Base, Little Creek Detachment, Norfolk, Virginia

LORAN-C GUIDES RPV IN SOLID-SHIELD MISSION

CAMP LEJEUNE, N. C. -- May 31 -- A Northrop Remotely Piloted Vehicle (RPV) was successfully flown in its first mission as part of the tri-service Solid Shield amphibious landing exercises currently underway here.

The RPV, known as the NV-128, is a simple modification of the Northrop MQM-74 target drone to accommodate added payload volume and weight. It is a development of Northrop's Ventura Division, Newbury Park, Calif.

Project Manager, Darrel Welch said the NV-128 has been developed to provide timely photography in support of Navy amphibious assault operations.

"The RPV's precise navigation assures high effectiveness in obtaining the required photographic coverage," he noted.

Welch said the vehicle carried a Chicago Aerial Industries 70 mm frame camera as a primary sensor and a forward oblique motion picture camera. Also, an infrared line scanner or panoramic camera is interchangeable with the still camera system.

The precise navigation needed in the mission was accomplished through use of an on-board Litton AMECOM Loran system which provided automatic commands to the Northrop autopilot.

The NV-128 has a wingspan of 5.6 feet and a length of 13.4 feet and is powered by a Williams Research turbojet engine. It is capable of speeds to 450 knots and altitudes of more than 35,000 feet.

LORAN-C WORKSHOP

Continued from Page 1

On 16 May 1974, Coast Guard Commandant Admiral Chester R. Bender and Deputy Under Secretary of Transportation Robert H. Clement announced that LORAN-C has been named as the navigation system for the U. S. Coastal Confluence Region (CCR). The U. S. Coast Guard, foreseeing the increasing role of LORAN-C and its impact on the user population, had been engaged in a public awareness effort prior to this announcement. This effort was directed primarily toward present users of LORAN-A and toward enlisting the assistance of industry in achieving success in gaining additional acceptance for the planned changeover.

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FORT HOOD LORAN CHAIN HEADQUARTERS, MASSTER

During 1st quarter, FY75, MASSTER plans to activate a chain of three LORAN-C/D transmitters which will provide signal coverage in the Central Texas area for utilization as a MASSTER testing asset system, and as a navigational training and navigation aid device for Fort Hood troop units. It is currently anticipated that Fort Hood troop units will be issued LORAN-C/D receiving equipment during third quarter, FY76. MASSTER is currently scheduled to conduct testing of the PSN-6 LORAN Manpack OT-2 during third quarter FY75 with additional tests to follow.

The transmitter equipment to be installed is commercially available and heretofore used to provide precision radio location services in support of off-shore exploration activities. The signals produced by the chain are expected to be highly stable and repeatable in that the transmissions from one station relative to another are controlled to within 20 nanoseconds rms (exclusive of frequency standard relative drift). The accuracy with which a user located within the coverage area can determine his actual position is very much more a

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LADY BE GOOD

Concluded

Our story which began in the summer '73 issue of the Goose Gazette is about a B-24 LIBERATOR Bomber, a veteran of WW II, found in the Libyan desert on November 9, 1958. The aircraft, christened the LADY BE GOOD - disappeared after a raid on Naples from its base at Soluch in Libya on April 14, 1943.

Three men were left. They struggled northward for another twelve miles or so and then collapsed, to lie unburied for seventeen years. The last man was never found.

They fought for their lives with courage and discipline and they met their deaths bravely. Nevertheless, the disaster was the result of a series of navigational mistakes, and there had been several opportunities to prevent it.

The bombs fell at ten o'clock at night, but Hatton did not ask the radio operator to get him a radio bearing along which he would home to Benina until twelve minutes past midnight. In itself, this is not surprising, since no bomber crew would advertise its position until it considered itself out of the range of shore-based fighters. The dead-reckoning position of the aircraft, after two hours, would be about two hundred miles or so from home. When the bearing was received, it was reported at 330°. However, analysis shows that the actual bearing of the aircraft must have been not 330°, but its reciprocal, or 150°. When the radio bearing was received, Lady Be Good must have already flown past its home base, and been already across the coast and heading into the Libyan desert.

Once again, believing the bearing to be 330° and not 150° is perfectly natural. To travel from Naples to Benina in two hours and 12 minutes calls for a groundspeed of about 270 knots, far higher, quite likely, than the crew had ever experienced before; Lady Be Good was being pushed along by a tailwind of seventy or eighty knots. The bearing, reciprocal though it turned out to be, was just what the navigator and the pilots expected to receive. They settled down to fly down the bearing until they flew over their base.

Many times before, undoubtedly, this technique had worked. Tonight, however, they were flying away from their base, not toward it. Actually, they must have come pretty close; a line from Benina, plotted at 330°-150°, passes very close to the line joining Benina to Naples and produced to the location where the aircraft finally crash-landed.

After getting one bearing, and then failing to get another, the crew simply continued to fly on the same heading until they ran out of fuel. Furthermore, they were so uncertain of their position that they thought themselves over the Mediterranean, when in fact they were nearly four hundred miles inland.

The trouble undoubtedly lies in failure to check the aircraft's position. There was apparently plenty of time to do it. First, about 180 miles south of Naples the route crosses the tow of the Italian boot, where a series of unmistakable landmarks should point out the aircraft's position unmistakably. There might have been a double dose of ill luck here, of course; the aircraft's groundspeed, much higher than expected, meant that they crossed the Calabrian peninsula much before they expected to, with the result that at that time nobody was looking for it. Thereafter, when they were looking for it, they would of course not see it. There is always the possibility of cloud cover, which may have hidden it in any case. The pilots and gunners would probably have been searching the sky for enemy fighters, and not the ground for landmarks.

Once past the Italian boot, the navigator should have taken steps to check his position and his groundspeed. Apparently he did not; although there is always the possibility that he did, found himself much farther south than he expected to be, and did not believe the information. It is even possible that he may have obtained celestial position lines and found them disagreeing with his dead reckoning, based as it was on erroneous meteorological winds, and discarded them.

There were at that time various radio broadcasting stations in North Africa which would have been used to obtain radio-compass bearings, since extensive flight operations had been going on in the area since 1940. Either such radio-compass bearings were not obtained, or else the navigator discarded them also.

The attempt of the radio operator to contact Benina after Hatton became worried about his position turned out to be abortive because the aircraft happened to be in "skip-distance" zone where the radio transmissions missed it. Another try a quarter of an hour later would very likely have given Lady Be Good the information it needed, but the attempt apparently was never made.

Another shortcoming on the part of the crew was their failure to find an accurate wind (or at least a less accurate one). By dropping flares while flying on the legs of a double-drift or three-drift "wind star", they could have measured the drift they were experiencing. They may have been reluctant to do so, however,

because they thought the flares might attract enemy fighters. The fundamental fault, however, was the crew's reluctance to do anything but fly out their heading until their tanks ran dry, despite the fact that their computed groundspeed must have fallen absurdly low if they were still over water, as they thought, rather than four hundred miles inland. Obviously, when their Estimated Time of Arrival came and passed, they should have done something other than simply fly straight and hope for the best.

Of course, it is highly unjust to condemn them now, a quarter of a century later, for failing to do things that would be second nature to airmen today. First, they were all very inexperienced. Combat veterans they were, but they had probably been flying only a year and a half. They had been trained, as most American crews were at the time, entirely for day flying, and night flights where their daylight experience stood them in little stead were new and different to them. The navigator had been trained to guide his aircraft by following the leader in a bomber formation, and to spend 95% of his time manning a machine-gun. The radio operator also was undoubtedly unused to working as part of a team with the navigator. The intricate, self-instituted cooperation found in an experienced crew, where each member automatically reports what he knows his fellow crewmembers want to know, had probably not had time to be established.

The navigator was undoubtedly inexperienced in the use of celestial navigation, and was also very probably out of practice. Even with experienced celestial navigators, the temptation to disbelieve star-sights when they disagree with one's dead-reckoned position is very great. The natural reaction, faced with a grave disagreement, is to look for arithmetic mistakes in working out the sights, or to question the reading of one's watch. It takes years, not months, to make a good celestial navigator, and a man who spends his airborne time behind a gun and not handling a sextant is fatally handicapped.

There are certainly a host of extenuating reasons why the crew of Lady Be Good became hopelessly lost. The minutes of mental agony while the fuel was running out, and the days of mental and physical agony that followed, were an incredibly harsh punishment for a failure to cope with a new and unfamiliar set of circumstances. But this proves, once again, that while the air is not intrinsically dangerous, it is terribly unforgiving of any carelessness or incapacity.

THE END

If
you're with
LORAN...
you
should be
a **WILD
GOOSE**



MEMBERSHIP APPLICATION

Wild Goose Association

Walter N. Dean

7340 Blackhawk Lane, Ft. Wayne, Indiana 46805

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

U. S. CITIZEN ☐ OTHER _____

INITIAL FEE AND FIRST YEARS DUES - \$10.00

CHECKS OR MONEY ORDERS ONLY (Make check payable to WGA)

LORAN-C WORKSHOP

Continued from Page 5

Participants of the workshop were briefed on the latest developments in LORAN-C and the organization of the workshop by Rear Adm. J. W. Moreau, U. S. C. G. Chief, Office of Engineering. Adm. Moreau stressed the latest developments in the LORAN-C system will enable the user to put the LORAN-C system of navigation to work in conjunction with the other aids to navigation available to the prudent mariner. In addition, a tentative schedule for LORAN-C expansion during FY 75 - 80 was given.

Theodore C. Lutz, DOT Deputy Undersecretary, spoke briefly on the need for a National Navigation System such as LORAN-C and stressed that the DOT Secretary is behind the implementation of LORAN-C and indicated that the WGA was instrumental in launching the LORAN 70s Program.

Adm. Price, U. S. Coast Guard, Chief LORAN-C Operations, stressed that needs for accurate navigation are intensifying specifically on the sea. Mineral, oil exploration, etc. requires precise position fixing that can only be achieved with LORAN-C.

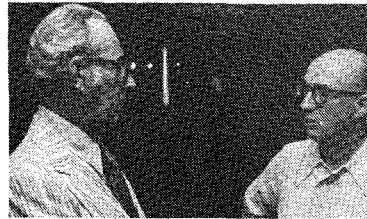
Leo Fehlner of APL gave the history of the WGA and its contributions to the LORAN community and invited those who would like to be kept current on new developments in the LORAN world to become members of the WGA.

Cdr. Bill Mohin, U. S. Coast Guard, presented the rationale for selecting LORAN-C as the National Navigation System. There are presently eight (8) LORAN-C transmitting chains, with a total of twelve expected to be in operation by 1980. In many areas, LORAN-C and LORAN-A services will be overlapping, a situation that the Department of Transportation sees as unnecessary if continued over a long period of time. There are approximately eighty-three (83) LORAN-A stations in constant service today which are showing signs of age and obsolescence. These stations service some 75,000 receivers aboard military and commercial ships and planes. LORAN-C was designed to replace LORAN-A so the government could have a system less costly to operate and more accurate. Unfortunately, the price tag associated with LORAN-C receivers, until very recently, made the superior system less appealing to potential users in the commercial and recreational boating communities. Now, as a result of continuing research in receiver design and a concurrent use in demand for LORAN-C receivers, manufacturers have been able to produce sets at a retail cost competitive with the old LORAN-A receivers.

The phase out of existing LORAN-A stations, once initiated, will be phased over a number of years to provide a sufficient period of dual LORAN-A/LORAN-C operation to cover amortization of existing LORAN-A receivers and the conversion of historical LORAN-A position data to LORAN-C coordinates. The phase out of LORAN-A is now anticipated to be complete by 1980.

In preparation for the workshop a symposium committee was constituted in early April.

In a series of meetings six major topics were defined for the workshop. It was decided to assign the participants to six working groups--one to each topic--on the basis of their areas of interest and expertise as determined from their corporate affiliation or expressed wishes. A moderator was selected for each working group based on related experience and achievement in the area associated with the charter of the working group. Those selected from industry and government to serve on the committees and as working group moderators were:



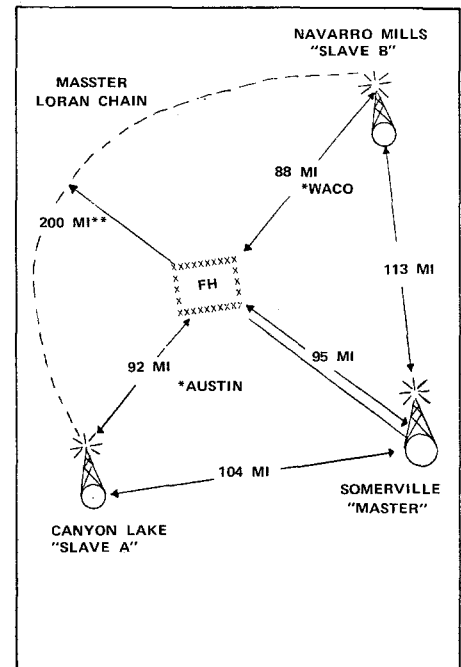
Mr. Robert G. Mauermann of the Texas Association and RADM James W. Moreau, USCG discussing the benefits of LORAN-C navigation. (Photo by Steve A. Saft, Asst. Editor of National Fisherman.)

FORT HOOD

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function of the receiver performance given this stable set of signals. However, with high performance units, it is reasonable to expect position determinations with repeatabilities in the order of 10-15 meters in the prime coverage area.

The MASSTER installation is to be an exact short range replica of the established and proven LORAN-C system and its tactical version LORAN-D and will be capable of providing signals in either format. ACCUFIX equipment will comprise the LORAN system hardware; the equipment is designed and manufactured by Megapulse, Inc. of Bedford, Mass. and is made up of a group of modules and subsystems configured to provide desired capabilities.



MONITOR SITE W/TWO RECEIVERS
AND TT LOCATED IN MASSTER AREA
**MINIMUM OUTER LIMIT OF OPERATION

DEPLOYMENT OF UNMANNED SITES

As shown in the deployment sketch, the coverage will be accomplished through the employment of three unmanned, remotely controllable sites with locations at Somerville Reservoir (Master Transmitting Station, located approximately 95 miles southeast of Fort Hood), Canyon Lake Dam (Slave "A" Transmitting Station, located approximately 92 miles southwest of Fort Hood) and Navarro Mills Reservoir (Slave "B" Transmitting Station, located approximately 90 miles northeast of Fort Hood). Each transmitter site will be located on U. S. Government property under the control of the U. S. Army Corps of Engineers.

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SYMPOSIUM COMMITTEE

Chairman: RADM James W. Moreau, U. S. Coast Guard
Chief, Office of Engineering

STEERING COMMITTEE

Technical Coordinator: Gabriel Frenkel
Computer Sciences Corporation

Members: John M. Beukers, Beukers Laboratories, Inc.
CDR James F. Culbertson, U. S. Coast Guard
Leo F. Fehlner, Applied Physics Laboratory, J. H. U.
David T. Haislip, U. S. Coast Guard
William L. Polhemus, Consultant
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WORKING GROUP MODERATORS

1. User Needs and Operating Techniques - William L. Polhemus, Consultant
2. Receiver Developments - Leo F. Fehlner, Applied Physics Laboratory, J. H. U.
3. Charting and Information Transfer - John E. Hanna, Jr., Defense Mapping Agency
4. National/International Aspects - David T. Haislip, U. S. Coast Guard
5. Harbor and Estuary Navigation Using Loran-C - Robert H. Doherty, Institute of Telecommunication Sciences
6. Ancillary LORAN-C Applications - John M. Beukers, Beukers Laboratories, Inc.

by RICKY PASQUIER



GOOSE GAZETTE

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