

A History of Coast Guard Aviation

Coming of Age

1957 – 1975

Summary Overview

In the year 1956 the Coast Guard operated 127 aircraft consisting of 14 models. Of this total 50 were of WWII vintage. In addition there were only 28 helicopters in the entire inventory. The House Appropriations Committee of the United States Congress had previously recommended that a program be developed for the regular annual replacement of Coast Guard aircraft. This program was abandoned in the revised fiscal 1954 budget by the Executive Branch on the grounds that it was to be restudied. Report number 1743, which accompanied the fiscal 1957 appropriations bill for the Coast Guard, directed the Secretary of the Treasury and the Commandant to cause a complete evaluation of all Coast Guard activities, the conduct of which require the use of aircraft, and to present at least preliminary conclusions by December 31, 1956. The recommendations were to include the kinds of activities requiring aircraft, types of aircraft required, and numbers of aircraft required. In addition it was directed that a program for financing the procurement and replacement be part of the plan. On 26 February 1957, the Secretary of the Treasury and the Commandant submitted the Joint Report requested by Congress. The Joint Report constituted a "Five Year Plan" for Coast Guard Aviation. In the letter of transmittal to the committee the Secretary of the Treasury stressed that since the plan was intended to meet both present and future needs of Coast Guard Aviation it would be essential to subject the plan to a continuing re-examination.

The Report recommended three general types of aircraft for procurement; namely, long range, medium range, and short range and applied the concept of "fewest models." The report further detailed specific aircraft by model, aircraft deployment, facility requirements, aviation personnel requirements, and the costs involved over the five year fiscal period. The Joint Report recommended a fleet of 195 aircraft of which 99 were to be helicopters. The greatly increased number of helicopters reflected a major shift in the thinking within Coast Guard aviation.

Because of budgetary limitations, the Joint Report was revised in 1958 and twice in 1959. By January of 1960 the funding obtained was only 42% of what was required. Because of the extent of the required residual funding the Commandant convened a Special Board for the re-evaluation of Coast Guard Aviation requirements. Included in his instructions was a direction to the Board to develop a realistic financial plan. The Board consisted of nine senior officers assigned to duty at Coast Guard Headquarters. Five of these Officers were aviation officers in current flight status while the remaining four members were non-aviators. The Joint report, reinforced by a Coast Guard Roles and Mission study conducted in 1961 had a far reaching positive impact on the Coast Guard which extended beyond the aviation community.

There were those who felt that budgeting a fixed sum for aircraft procurement would deprive the service's ships and shore stations of much needed funds. The opposite occurred. The benefit of the Requirements of Coast Guard Aviation Report went far beyond the procurement of much needed aircraft. The Report was a catalyst for a change in thinking on how the Coast Guard approached its missions. Prior to this time the Coast Guard was tactical and reactive in nature. There was no long range planning of any substantial consequence. This was about to change. The requirements to implement the Aviation Plan were projected out in five year segments and in some cases beyond. Additionally the status of Coast Guard Aviation was in constant review and the Plan continuously updated to accommodate future requirements. The concept became Coast Guard wide with the completion of a committee report on the missions and conditions of the cutter fleet and stations. The first of 79 Point Class 82 footers was launched in 1960 and the contract for the first of a planned 210 foot cutter with a helicopter deck was let in 1961. This type of planning would continue for surface requirements as additional cutters and patrol boats were designed and built. The concept continued to develop and grow, with intermittent setbacks, and is the basis for the current Deepwater planning.

In 1963 the first of the HH-52 helicopters, a joint project with Sikorsky Aircraft, came on board. The HH-52, with over 15,000 lives saved in its twenty-five years of service, has the honor of having rescued more persons than any other helicopter in the world. It became the international icon for rescue and proved the worth of the helicopter many times over. Aircraft continued to be added to the inventory. Existing Air Stations were upgraded, new Air Stations were added, and consolidation took place where warranted -- all in a systematic sequence of events to facilitate and accommodate the expanding role of Coast Guard Aviation.

Other changes were taking place. The Coast Guard had established a Flight Safety billet at Headquarters and began sending experienced aviators to the University of Southern California flight safety course the object being to furnish each aviation unit with a trained flight safety officer. In 1962 a Board was convened to develop an HU-16 Standardization Manual. This was the first Coast Guard wide Standardization Manual. The Board made an additional recommendation that had a profound effect on the genuine professionalism in the ensuing years. They recommended a training command and thus the seed was planted. The C-130s marked the beginnings of standardized training. The Coast Guard invested much time, effort and money into the development of an HH-52A Pilots Handbook and an HH-52 on site standardized checkout program had been developed to bring the new helicopter on board. The program proved successful and as a result Headquarters established a Basic Operating Training Unit at Air Station Savannah. With new aircraft coming on the line the requirements outgrew the facility and a greatly expanded training unit was moved to Mobile, Alabama and the Aviation Training Center was established. The Training Center expanded to meet Coast Guard needs. Advantage was taken of new concepts and technology and highly sophisticated simulators were acquired and utilized. Simulator training for helicopter pilots became the norm and in 1973 the Coast Guard became the first service to authorize instrument ratings based strictly on simulator flight.

The United States had become involved in the Vietnam conflict and as 1965 began the advisory capacity had given way to full combat operations. The Navy requested assistance in off-shore surveillance patrols to interdict vessels supplying Viet Cong forces. Seventeen 82 footers were sent and conducted what was known as Operation Market Time. Coast Guard presence continued

to grow and in 1967 a pilot exchange program between the Air Force and Coast Guard was initiated. Coast Guard aviators, primarily helicopter pilots, served with Combat Rescue Units in Vietnam.

The Coast Guard was transferred to the Department of Transportation in 1967 after having spent 52 years in the Treasury Department. This would bring challenges in the years ahead.

The Coast Guard was given full responsibility for ice breaking operations and all Navy Icebreakers were transferred to the Coast Guard in 1967 with the stipulation that the helicopter pilots deployed on the ships would be Coast Guard Aviators. This resulted in the creation of the Ice Breaker Support Section being established at ATC Mobile to provide the necessary training and support.

In 1973, President Richard Nixon sent Reorganization Plan 2 to Congress to address the growing drug menace. A single federal agency, the Drug Enforcement Agency (DEA), was created to consolidate and coordinate the government's drug control activities. It was designed to integrate the activities of the narcotics agents and U.S. Customs agents. It soon became apparent that drugs were coming into the country by aircraft but the majority was smuggled by ship. Even though transferred to the Department of Transportation the Coast Guard still retained the responsibility for maritime law enforcement. In addition, the Coast Guard had ships to interdict the flow of drugs -- the other agencies did not. As a result, the Coast Guard would see a growing involvement in drug interdiction which resulted in increased deployment of helicopters on board the cutters. Over the years the role of Coast Guard Aviation in drug interdiction would continue to grow.

Search and Rescue

The primary responsibility of Coast Guard Aviation during this period remained Search and Rescue (SAR). With the advent of the HH-52A helicopter and additional air units the SAR statistics increased dramatically. During the ten year period 1965 -1975 the number of cases increased by 62% and the number of lives saved by 54%. Although the statistics are not broken down into aviation and surface categories the impact of the new helicopters and air units was evident. A complete narrative of SAR incidents is outside the parameters of this section, however, there are over 540 citations, Air Medal and above, awarded to Coast Guard Aviators that can be viewed in "The Roll of Valor" on this web site. Their exploits are truly amazing!

Historical Timeline of Events

Coming of Age 1957- 1976

Year	Date	Remarks
1957	26 February	At the request of Congress the <i>Joint Report on the Requirements of the Coast Guard</i> was submitted to congress and implemented a year later. This document defined Coast Guard aviation's primary role as Search and Rescue, specified the types of aircraft needed for that purpose, and indicated the number of each type that should be acquired during each of the next six years
1958	26 June	C-123B aircraft obtained
1958	July	Coast Guard Air Detachment Naples, Italy was established
1959		HUS-1G helicopters were obtained.
1959	April	The feasibility of destroying icebergs by means of thermal bombing was evaluated
1959	Several years	The LORAN C chains were established
1959	31 December	First of a number of C-130 were obtained
1961	October	A Coast Guard Roles and Mission study was conducted. It had a profound effect on the development of the coast Guard,
1962	April	Coast Guard Aviation Plan inaugurated
1962	September	UF-2G (HU-16E) certified for nine world class records for amphibian aircraft.
1962	14 October	Cuban missile Crisis – Surveillance flights conducted by the Coast Guard.
1962		The first Coast Guard wide Aircraft Operating Standardization Manual was published. It was for the HU-16 Albatross.
1962	November	Air station Los Angeles Ca. was established
1963	9 January	The first of 99 HH-52A helicopters entered service with the Coast Guard
1963	19 March	VC-4A executive transport was obtained
1963	August	Air Station Savannah, Ga. was established
1963	23 December	Air station Houston Texas was established
1964	14 August	Air Station Astoria, OR. Was established
1964		The first of the 210 foot WMEC Coast Cutters was commissioned, The 210s had a helicopter deck but no hangar
1965	20 November	Miami Air Station moved from Dinner Key to Opa Locka
1966	1 July	Air Station Detroit Mi. was established
1966	17 December	The Coast Guard Training Center Mobile was established
1967	March	A Coast Guard - Air Force pilot exchange was initiated. Coast

		Guard aviators served with Air Force Combat Air Rescue squadrons in Vietnam.
1967	1 April	The Coast Guard transferred to the Department of Transportation.
1967	6 April	The present stripe and Coast Guard livery was designated for Coast Guard aircraft and ships.
1967	November	The first of the HH-3F helicopters entered service
1969	January	The Helicopter Ice Breaker Support Section was established at ATC Mobile
1969	February	The VC-11A executive transport entered service – it was the first turbojet aircraft.
1969	1 March	Air Station Chicago II. Was established
1969	March	The Coast Guard deployed a detachment to Greece to train Greek Air Force personnel in the HU-16.
1969	March	The simulator training program was initiated at CG Aviation Training Center
1969	17 July	Air station Cape May NJ was re-commissioned.
1970	29 August	Air station Cape Cod was established –
1970	November	A two year evaluation of SK-5 hovercraft used as rescue vehicles was conducted.
1971	November	Air Station Borinquen PR. was established
1972		The Coast Guard uniform was changed
1973	31 August	A Medium Range Search Aircraft evaluation was conducted – this led to the procurement of the HU-25
1973	September	CG Drug interdiction operations began – helicopters were deployed on surface vessels
1974	28 September	Air station North Bend Or. was established

1957 - The Joint Report on the Requirements of the Coast Guard:

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Report number 1743, which accompanied H.R. 9064 stated in part;

“The House Appropriations Committee is gravely concerned with the situation respecting replacement of Coast Guard aircraft. At the insistence of this committee, a program for regular annual replacements was instituted several years ago. This would have enabled the Coast Guard to obtain replacement aircraft on a regularly scheduled basis, avoiding the necessity for recurring peaks in appropriations requests, and more importantly, keeping the air arm of the Coast Guard equipped with current model, safer and more economical craft. In the revised budget for fiscal year 1954, this program was abandoned by the executive branch on the grounds it was being restudied. To date, no alternative has been proposed.

The committee directs the Secretary and Commandant cause a complete re-evaluation of all Coast Guard activities, the conduct of which requires the use of aircraft, and present at least preliminary conclusions by December 31, 1956, including recommendations as to kinds of activities requiring aircraft, types of aircraft required, numbers of aircraft required and a program for financing the procurement and eventual replacement of such aircraft as may prove desirable.”

A Special study Group established on 18 April made a comprehensive evaluation of Coast Guard Aviation. On 26 February 1957, the Secretary of the treasury and the Commandant of the Coast Guard submitted the Joint Report requested by congress. This Joint Report was a “Six Year Plan” for Coast Guard Aviation.

When the Joint Report Requirement board was convened the Coast Guard inventory was 127 aircraft and consisted of 14 models. The general classification of these aircraft consisted of 17 long range landplanes, 17 long range seaplanes, 47 medium range amphibians, 20 medium helicopters, 8 light helicopters, 18 special service aircraft.

MODELS			
PBIG	7	HO4S	20
P4Y	5	HO3S	5
R5D	5	HTL	3
PBM	9	RM	2
P5M	8	R4D	3
UF	47	JRB	5
JRF	6	OY	2

The Joint report of 1957 recommended a fleet of 195 aircraft be attained by the end of FY 1963 to consist of 6 models. The 195 aircraft were to consist of 10 SC-130B long range landplanes, 11 P5M long range seaplanes, 69 UF medium range amphibians, 79 HUS medium range helicopters, 20 HUL light helicopters, and 2 RM special service aircraft.

In the period 1957 through 1960 the following aircraft were obtained:

9 R5Ds to replace overage P4Ys and PB1Gs pending replacement by C-130 aircraft.

14 UF-1G Grumman amphibians

3 P5M Seaplanes

9 C123B aircraft for logistical support for the augmented LORAN construction program. These aircraft were not part of the original requirements as the augmentation had not been directed by DOD at that time.

6 SC-130Bs

6 HUS helicopters

9 additional HO4S helicopters

2 HUL helicopters

Due to budgetary limitations procurement had fallen considerably behind planned acquisition and in 1960 a re-evaluation was directed.

The re-evaluation board was to re-evaluate the concepts and basic findings of the original 1957 requirement report to:

1. Determine the Coast Guard Duties or activities in which the use of aircraft is required.
2. Determine the types and numbers of aircraft required to carry out the role of Coast Guard Aviation in those duties.
3. Determine the distribution and deployment of such aircraft.
4. Develop a comprehensive and realistic financial plan, covering the procurement and orderly replacement of Coast Guard aircraft.

Number 2 and 3 coupled with the 1960 Roles and Mission study led to the implementation of the Aviation Master plan. Number 4, to a large degree, insured funds for procurement. There were some in the Coast Guard that felt that budgeting a fixed sum for aircraft procurement deprived the service's ships and shore installations of funds needed for upgrade and replacement. This would prove to not be the case.

There was a reduction in recommended fixed wing aircraft and a sizeable increase in the number of helicopters. Over half of the number of operational aircraft required were helicopters. The thinking in Coast Guard aviation had changed. Numerous additional helicopter Air Detachments were proposed.

They were:

Rockland, Me.

Groton, Conn.

Naples, Italy

Cape May, NJ

Beaufort, SC

Galveston, TX

Detroit, MI

Buffalo, NY

Chicago, Ill

Los Angeles, CA

Cape Canaveral, Fl
Ft. Myers, Fl.
Valparaiso, Fl

Humboldt Bay, CA
Coos Bay, OR
Astoria, OR

The movement of some of the major air stations and changes in operational requirements modified the Air Detachment requirements to some extent but the basic premise remained intact.

1958 - C-123B aircraft obtained:



The C-123 was initially designed as the YG-18 glider by the Chase Aircraft Corporation. It was all metal and the first of the series took to the air in 1947. It had an upswept rear fuselage modified with a hydraulically operated loading ramp. This shape remains the characteristic of most modern transports to this day. During the evaluation period Air Force interest shifted toward powered assault aircraft. Convinced that the YG-18A airframe was of sufficient strength to accommodate power plants Chase installed two Pratt & Whitney R2000 engine and the aircraft flew in powered form in 1948 and redesignated as YC-122. The power plants were changed to R-2800, design features added, and the aircraft entered the Air Force Inventory as the C-123.

Henry Kaiser acquired control of Chase aircraft and the C-123 was produced at the Willow Run, Michigan manufacturing facility as the C-119 was being phased out. In June 1953 all USAF contracts with the Kaiser organization were canceled and a request for competitive bids for the

C-123 was forwarded to several major aircraft manufacturers. In October of 1953 the Fairchild Aircraft Company was awarded the contract to begin a series production of 293 C-123B aircraft.

Pre-Vietnam service saw the C-123B utilized as a troop carrier, medivac transport, and support missions from short, minimally-prepared landing strips. Operational enhancements continued and the aircraft was used extensively during the Vietnam conflict for a multitude of missions. The last modification designation was C-123-K. Two small pylon mounted J-85 engines were fitted under the wings augmenting the take off thrust by 2,850 pounds.

The Coast Guard acquired the first of eight C-123B's from the USAF in June of 1958 for use as logistical transports in support of the expansion and installation of the LORAN C network and other isolated installations. These installations were situated around the globe, many of which were situated in remote locations. The aircraft operated from Coast Guard Air Stations located at Miami, Florida; Puerto Rico; Barbers Point, Hawaii; Guam; Kodiak, Alaska; and Naples, Italy. They were distinguished from other C-123s by the Coast Guard color scheme and the large nose-mounted APN-158 radar. As a secondary mission they were also utilized for search and rescue. The last of the aircraft were retired from Coast Guard service in 1972.

Manufacturer	Fairchild Aviation
Designation	C-123B
Aircraft Type	Supply transport
Cost	\$601,719
Wing Span	110'
Height	34' 1"
Length	75' 9"
Cruising Speed	205 mph
Range	1,470 statute miles
Empty Weight	29,900 lbs.
Gross Weight	60,000 lbs.
Crew	3
Engine(s)	2 x 2,300-hp Pratt & Whitney R-2800-99W Double Wasp 18-cylinder radial piston engines;



1958 - Air Detachment Naples, Italy was established:



In October of 1957 the USSR launched the first man made satellite. This expedited the requirement for a long range, highly accurate radio-navigation system for use with the satellites and missiles the United States was developing. There were three contenders; Omega, Decca, and Loran C (then called CYTAC). CAPT Peter V. Colmar USCG believed strongly in the value of Loran C as a long range precision navigation system and convinced the Navy to fund testing. The controlled test convinced Admiral Hyman G. Rickover USN, the father of the nuclear submarine, to go operational with it. The Coast Guard coordinated with Sperry Corporation in the design and building of the system and it

was operational in a year and a half. The first stations to be established in what would become a global network were in the Mediterranean. This would be followed by construction of stations in the north-eastern Atlantic.

Coast Guard Air Detachment Naples was established in mid 1958 to support this effort. It was a tenant activity, co-located with the U.S. Navy at the US Naval Air Facility Naples on the Italian joint military and civilian airport Capodichino. Two C-123B aircraft were obtained from the Department of Defense and used to provide logistic support for the construction and operation of Loran C Stations being built at Marble Arch, Libya; Rhodes, Greece; Simeri Crichi, Italy; and Corlu, Turkey. Additionally many hours were spent performing in-flight calibrations of the Loran C signals. Upon completion of the calibration bottom surveys of the Mediterranean Sea were conducted. Even more significant, the Fleet Ballistic Missile submarines were equipped with sophisticated Loran C receivers. The submarines had an inertial navigation system but it had to be regularly updated. They had a low level orbital satellite navigation system also. The problem was that this system required an antenna above water to receive it. Since both the Submarine and the Soviets new the satellite schedule the submarines position could be compromised. Loran C on the other hand could be received at 60 or more feet below the surface anywhere in the coverage area at any time the need arose. The submarines used Loran C regularly to update their Inertial Navigation System. It also served as a primary navigational backup.

Airborne site surveys that resulted in the construction of additional Loran C stations in the northern arc of Europe on the Germany's Fresian Islands, Jan Mayen Island in the Norwegian Artic, Sandur Island and Estartit, Spain were also conducted. These stations were in support of the Defense Department navigation requirements also. As the chains were completed the Air Detachment, now referred to as an Air Station, continued logistic service.

The operational control of the Mediterranean, Norwegian and North Atlantic Chains were combined in 1966 into activities Europe and the Naples Air Station became an Activities Europe unit. In 1972 the Air Station was closed and the Loran Stations received support from other military units and civilian sources. The Coast Guard withdrew its personnel from the Loran Stations in the 1993-1995 time frame.

1959 - HUS-1G helicopters obtained:



The H-34 started as a private Sikorsky Aircraft development, which the military ignored. However, it soon became a true workhorse in service with all branches of the U.S. armed forces, in addition to a host of foreign nations, and a variety of civil operators. The H-34 was also the final evolution of large piston-engine helicopters before the rise of turbine powered designs.

Early Sikorsky designs placed the large reciprocating engine behind the cabin. This had the effect of restricting the center-of-gravity of the helicopter to a very narrow range. Igor Sikorsky and his design team discovered that if they moved the engine to the front of the cabin, closer to the axis of the main rotor, the center-of-gravity envelope became much larger. This configuration required the relocation of the cockpit to a position on top of the engine. Sikorsky engineers inclined the engine at a 45-degree angle so that the drive shaft would not run through the main cabin, though this created a partition between the cockpit and main cabin. However, the addition of clamshell doors to the nose of the aircraft made maintenance access to the engine far simpler than it had ever been before.

A nine-cylinder air-cooled Wright R-1820-84 reciprocating engine powered the single-rotor H-34. The massive engine required an elaborate blower system to keep it cool. Shafts and gearboxes situated along the spine of the fuselage and a substantial tail pylon drove the tail rotor. The fuselage was all metal, principally magnesium alloy, for weight savings.

The SH-34s (HUS-1) were used predominantly for anti-submarine warfare operations and were equipped with dipping sonar to locate the enemy and/or torpedoes to home in on and destroy a submarine. They were fitted with automatic stabilization equipment.



The U. S. Coast Guard acquired six HUS-1Gs (H-34s) from Sikorsky in 1959 as a replacement for the HO4S-1G. The HUS-1G had a greater range, due in part to droppable fuel tanks, and a greater payload than the HO4S-1G. It was fully equipped for instrument flight, had upgraded electronics, a 600 pound capacity hoist and automatic stabilization equipment.

Three of the HUS-1Gs purchased were lost in accidents and the remaining three were transferred to Air America. The Coast Guard elected not to continue the purchase of the HUS-1G and instead participated with Sikorsky in the development of the Model S-62 for SAR use. The S-62 became the storied HH-52A amphibious helicopter.

Specifications	
Manufacturer	Sikorsky
Designation	HUS-1G
Other Designations, if any:	S-58; HH-34
Aircraft Type	Rescue helicopter
Rotor Diameter	56'
Blade Area	2,460 sq. ft.
Height	14' 4"
Length	65'
Top Speed	122 mph
Cruising Speed	97 mph
Sea Level Climb	1,100 fpm
Range	550 miles
Empty Weight	7,900 lbs.
Gross Weight	12,590 lbs.
Crew/passengers	2 crew; 12-18 passengers; 5,100 lb. payload
Service Ceiling	9,500 ft.
Engine	Wright R-1820-84

1959 - The feasibility of destroying icebergs by means of thermal bombing was evaluated:

The Coast Guard has conducted numerous experiments in attempts to determine means for accelerating the disintegration of icebergs. These have included gunfire, mines, torpedoes, depth charges, and bombing. However, the use of conventional explosives or combustibles proves difficult. In addition to the operational hazards of approaching and boarding an iceberg in a seaway; the theory of explosive demolition shows that a 1,000 lb charge of TNT would be needed to break up approximately 70,000 cubic ft of ice (1,960 tons) and a hundred such charges would be needed for the destruction of an average berg. Furthermore, to melt a medium size berg of 100,000 tons would require the complete theoretical heat of combustion of 2.4 million gallons of gasoline. Such methods are, of course, economically as well as practically unsound.

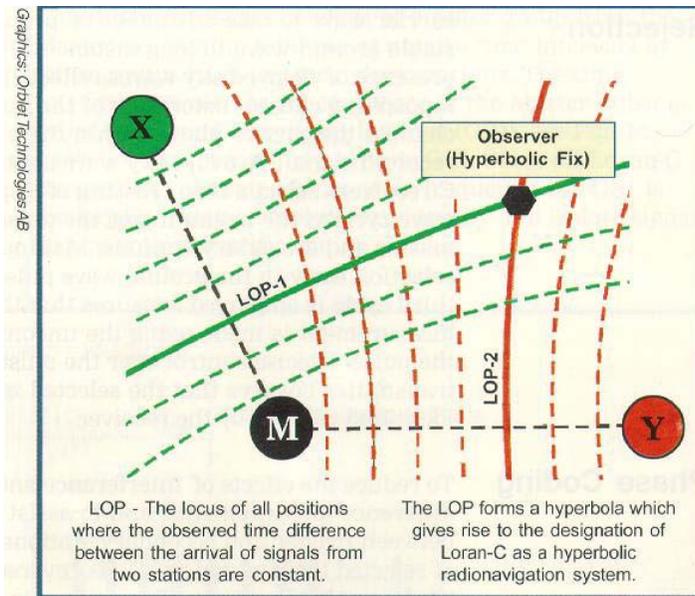
In 1959 and 1960, the Ice Patrol conducted a series of tests using the combustion of thermit. Early experiments by other scientists indicated that thermit, which explodes in ice with an extremely high temperature, would have a thermal "shock" or fracturing effect on icebergs. Ice Patrol experiments demonstrated that, under operational conditions, such was not the case. Natural deterioration remains the most practical process for the elimination of icebergs. Other than through these natural processes, the icebergs prove nearly indestructible. In summary, the following factors affect the longevity of an iceberg and/or the extent of its drift:

- sea ice protection.
- sea state
- water temperature
- wind
- current
- and bottom depth



HU-16E "ALBATROSS" USED DURING ICEBERG BOMBING DEMOLITION EXPERIMENT (1959 & 1960)

1959 - LORAN C chains established:



LORAN (**LO**ng **RA**ng Navigation) is a terrestrial navigation system using ground-based transmitters. Hyperbolic LORAN lines of position (LOP) are formed by measuring the difference in reception times of synchronized signals. Groups of LORAN stations are used to form intersecting LOP to provide cross fixing. A LORAN net, or chain, requires a master station, initiating the pulse, and a series of slave stations. In very simplified terms, the master transmits and the slave responds.

It is the calculated difference in arrival times of master-slave pairs that form charted rates and the observed arrivals

that form the navigational information. If the observation is exactly that of the charted value one is somewhere along the hyperbola of that value. That information is of little value without a second pair's hyperbola intersecting to provide a definitive fix along the first hyperbola. The station configurations thus must provide a geometry that allows such intersection. Where LORAN chains overlap one may obtain cross fixes from two different master/slave pairs.

The initial LORAN system, known as LORAN A, operated in the 1850kHz-1950kHz radio band, was developed during World War II in response to the need for precise navigation for military ships and aircraft. Scientists at the Massachusetts Institute of Technology and the Bell Laboratories, with the support of the War and Navy Departments made theory a reliable reality. The Coast Guards involvement began in 1942 when Admiral Woesche, Commandant of the Coast Guard, was asked to recommend an officer to direct the program. Lieutenant Commander Lawrence M. Harding was given the task and brought rapid progress to the project. By mid 1943 the system was operational in the North Atlantic. The success in the North Atlantic led to rapid expansion elsewhere. The Coast Guard had been involved with the development from the start so when the time came to provide trained personnel the Coast Guard found itself in the Loran business. This would continue to be a Coast Guard Responsibility after the war.

The Pacific war showed the need for a Loran-like system that could be operated over much greater distances than Loran A could provide.(600-700 nm daylight operation). The potential solution was to use lower frequencies so an experimental set of stations were set up. The main result of these tests was to show that pulse envelope matching, as used in Loran A, was too inaccurate with the long pulses at the low frequencies required and that a phase comparison system would be required. With the end of the war these experiments were not followed up on.

By the early 1950s, the Department of Defense required a highly accurate long range radionavigation capability. The Sperry Company had proposed a navigation system which would use phase comparison and operated on two frequencies. This was later reduced to one frequency and the Air Force tried to adapt it for tactical needs but had given up on it. The system was known as Cytac. Capt Peter V. Colmar USCG saw the value in the system as a long range precision navigation system. He convinced the Navy to fund a test using the CG Cutter Androscoggin which showed it would work. A test chain was set up on the East Coast and the Navy Survey Ships USNS Bowditch and USNS Dutton conducted a controlled survey test out as far as Bermuda. This convinced Admiral Hyman G. Rickover, father of the nuclear submarine, to go operational with it. He fought for money, got it, and Capt Loren "Zeke" Brunner USCG drove the effort and the system would become known as Loran C. The Coast Guard was up and operational in a year and a half during which time Sperry designed and built the equipment. Lcdr. Al Manning, who had been assigned to oversee equipment design, inspection and delivery flew out with the final pieces of equipment on December 28, 1958. The Mediterranean Loran C Chain was up and operational nine months later. The Norwegian Sea Chain was commenced in late March of 1960. Loran C operates in the 90khz – 110khz band. Under Coast Guard operation provided a repeatable accuracy of 18 – 90 meters with a 99.7% availability factor.

The LORAN C chains continued to be built to provide navigational coverage in those parts of the world where a third world war was likely to occur. Coast Guard Aviation was providing logistic support to the LORAN A Stations. This was continued and expanded to also provide air logistics to LORAN C stations. Eight C-123 cargo aircraft were obtained from the Department of Defense by the Coast Guard to provide for the increase in operations.

LORAN came into widespread civilian use as the initially expensive receivers came into commercial production and the cost went down. LORAN C offered much greater accuracy than LORAN A and the A system would come to be phased out. Due in large part to the continued widespread civilian use, LORAN C survived the initial Doppler navigation satellites and on into the current era of the Global Positioning System usually called GPS.

What is the status of LORAN C today? -- The main concern today is that it has become known that GPS signals are not difficult to jam. LORAN C signals on the other hand goes through everything. Therefore LORAN C will not be phased out for the foreseeable future. Interest is now being shown in an integrated GPS + LORAN C receiver thus providing back up and additional navigation capabilities.

Cost is another concern as navigation capabilities and facilities continue to be increasingly provided by the civilian world. For the cost of one launch of a satellite you can build a couple of LORAN C stations and run them for as long as a satellite would last. You would need 20-30 satellites to establish a complete navigation system. --- LORAN C will be with us for awhile.

1959 - First of a number of HC-130 aircraft obtained:



USCG HC-130B

As the C-130 proved successful with the Air Force, other branches of the service began taking a look at the new transport. The United States Coast Guard's mission of long-range search and rescue and coastal patrols dictated the need for a new airplane and the C-130 HERCULES filled the need. In 1958 the Coast Guard ordered four airplanes, the first of a dozen the service would receive by 1963. Since Lockheed had improved the original C-130 design, the first airplanes delivered to the Coast Guard were C-130Bs.

The HERCULES proved ideal for the Coast Guard mission. The airplane's long range allowed long loiter times while on patrol, a feature that was enhanced by the practice of shutting down the outboard engines to conserve fuel. This capability had been demonstrated in the early days of the C-130 program when a Lockheed crew flew an A-model all the way across the United States at low level with two engines feathered.

The first HC-130H flew on 8 December 1964. This updated version was obtained to primarily perform search and rescue missions. These aircraft also performed tasks related to the U.S. space program. They carried additional equipment and two 1,800-gallon fuel bladders in the cargo compartment. They also had a very unusual, and distinctive feature on top of the fuselage, forward of the wing. This large "blister" contained the Cook Electric re-entry tracking system which was used in conjunction with the Gemini spacecraft.

In 1966 the USCG received another version of the HERCULES, a specially configured EC-130E equipped with calibration equipment for the service's far-flung LORAN stations. In the late sixties and early seventies, the Coast Guard began equipping with the HC-130H, soon after the same version went into service with the USAF.



HC-130s can exceed 2,600 nautical miles (4,815km) in low-altitude flight with a mission endurance of up to 14 hours. Inertial Navigation Systems (INS), Omega, Loran-C, Global Positioning System (GPS), and radar and guidance aids that enhance the HC-130's effectiveness during long-range maritime patrols. These aircraft are also equipped with a ten-tube flare launch system. U.S. Coast Guard HC-130s are not capable of refueling other aircraft in flight..

The Lockheed Martin EC-130V AEW&C aircraft was first developed by General Dynamics in 1992 for the United States Coast Guard as a proof-of-concept aircraft. The EC-130V combined a C-130H airframe with the APS-125 Radar and Mission System of the U.S. Navy's E-2C Hawkeye. This aircraft was primarily used for counter-narcotics missions requiring greater endurance than the E-2C could provide, but had also been evaluated for Search and Rescue, Fisheries Patrols, EEZ enforcement and as a support aircraft for NASA Space Shuttle launches.

Externally, the EC-130V differs from a standard Coast Guard C-130 with the fitting of a large rotor-dome housing the APS-125 radar. Internally, the mission system is palletized and rolled into the cargo compartment.

Due to budget cuts, the Coast Guard EC-130V program was terminated and the aircraft was transferred to the USAF as the NC-130H for further development, including upgrading to the latest APS-145 radar.

C-130J aircraft were obtained in 2004 for a logistic support role. They had an enhanced cargo handling system that allowed for rapid conversion from in-floor load tie-downs to rollers for palletized cargo. In 2008 they were upgraded with interoperable mission packages equipping them to function as very effective search and rescue aircraft.



Coast Guard EC130V

1961 - A Coast Guard Roles and Mission Study was initiated:

John F. Kennedy had just become President of the United States and had appointed C. Douglas Dillon as Treasury Secretary and a fellow torpedo boat officer, James A. Reed as Assistant Secretary with Coast Guard responsibilities. Both the President and Mr. Reed were interested in ships and the sea. The nation had recovered from the economic recession of the late 1950s. Politically the time was right to address the obsolescence of Coast Guard equipment and facilities.

Secretary Dillon became cognizant of growing Coast Guard responsibilities and the joint concern of the Treasury Department and Bureau of the Budget officials over the growing Coast Guard plant obsolescence and the extensive funds required to modernize equipment and improve its capability to discharge its missions properly. Because of the magnitude of appropriations required it was considered necessary to have a clearer definition of Coast Guard missions, the extent to which they should be carried out, and a delineation of policy and organizational guidelines which up to this time had not been formulated at the departmental level. To accomplish this an interdepartmental study group was formulated, consisting of the Bureau of the Budget, Treasury, Department of Defense, and Coast Guard members.

In essence, the study report firmly supported the then current missions of the Coast Guard with particular emphasis on search and rescue, law enforcement, maritime aides to navigation, merchant marine inspection, and port security. Ten major functions were identified with 80 recommendations. The report acknowledged the need for a more definitive Treasury policy, pointed up certain weaknesses in Coast Guard policy, and emphasized the need for a more modern and capable service. It further recommended that in light of the growing complexity of Coast Guard operations that a single long-range plan be developed.

Secretary Dillon ordered that 76 of the proposed recommendations be implemented. He concluded that "many of the Coast Guard's multiple functions were transferred to it during national emergencies under the hard logic of expediency; there was nobody else who could do the job right then. With imagination and flexibility, the Coast Guard fitted each new task into its pattern of operation." It is the interdependence and cross-utilization of existing resources that allows the Coast Guard to accomplish the multi-mission responsibilities when no one else can. This is why it is imperative to invest properly in the infrastructure.

Because of this report, a better understanding of Coast Guard problems and requirements took place within the Coast Guard and the Treasury Department. Additionally it produced stronger support for its budget requirements with the Treasury Department, Bureau of the Budget, and Congress.

The Re-Evaluation of the Requirements of Coast Guard Aviation listed Search and Rescue as the primary mission of Coast Guard Aviation but noted that capability should exist to perform other duties as required. A good number of the requirements listed in the evaluation were affirmed in the Roles and Missions Study as was the concept of long-range implementation planning. Thus these two studies were the initial basis and justification of the expanded role of Coast Guard aviation over the decades to come.

1962 - Coast Guard Aviation Development Master Plan initiated:

The Aviation planning process utilized the 1960 Re-Evaluation of the Requirements of Coast Guard Aviation and the Roles and Mission Study of 1961 as the initial basis of the expanded role of Coast Guard aviation over the decades to come. Coast Guard Aviation had evolved into a premier tactical search and rescue organization but like the rest of the Coast Guard was reactive in behavior. This was the first proactive step toward the strategic concepts that would follow Coast Guard wide.

Basically the aviation plan determined the requirements to perform the projected operational missions of Coast Guard aviation and the proposed funding to provide almost concurrently for (1) the continued acquisition of aircraft needed to replace over-age aircraft; (2) the acquisition of additional aircraft to enable the Coast Guard to accomplish the mission into the future; (3) the necessary modification of existing facilities; and (4) the establishment of those facilities required to accommodate the aviation program; (5) the personnel to man them. The initial elements of cost were contained within the "Acquisition, Construction, and Improvement" appropriation but emphasis was placed on the continuance of the program into future budget years to assure a truly modern fleet supported by adequate facilities and personnel.

Aircraft acquired as a result of the initial 1957 "Joint Report on the Requirements of Coast Guard" had begun coming on board and as of 6-30-60 the number of aircraft on hand was as listed in the following table. The far right column gives the number of aircraft projected at the end 1996 by the "1960 Re-Evaluation of the Requirements of Coast Guard Aviation" study.

MODEL	TYPE	NR -6-30-61	NR. - 7-1-66
Long Range Land Plane	SC-130	6	12
	R5D	6	2 *
Long Range Seaplane	P5M	11	0
Medium Range Amphibian	UF	59	71
Medium Helicopter	HUS	6	95*****
	HO4S	27	0
Light Helicopter	HUL	2	8
	HTL	2	0
Medium Range Transport (C)	C-123B	9	9 **
Medium Range Transport (P)	RM	2	3***
	UF-2G	1	0
* Classification changed to special mission ** Coco Solo Panama not activated- only 8 C-123Bs were obtained *** Two Martin RM-1Z were retained – A Grumman VC-4A was procured as the third transport **** 6 HUS helicopters were procured – 3 of these crashed – procurement was discontinued and the HH-52A was purchased as a Medium Helicopter			

The Coast Guard was not satisfied with the performance of the HUS and was looking for a replacement helicopter. The HUS was the last of the pistons and as such the choice was turbine power. The Huey was in serious development problems at the time as was the Kamman H-2. Sikorsky had developed the twin engined H-3 (S61) which was a very good machine but the Coast Guard considered it too expensive to be purchased in the quantities needed. Sikorsky had produced a scaled down version of the H-3 for the commercial market but it was not selling. The Coast Guard was not limited to milspec so an arrangement was made whereby the Coast Guard would conduct an evaluation series at Sikorsky's expense. The aircraft proved to be exactly what the Coast Guard needed. The helicopter remained in service until 1989 and is credited with rescuing more people than any other helicopter. The Coast Guard would again utilize this method of procurement when it selected its jet powered, medium range fixed-wing search aircraft.

The location of additional air detachments, a project assigned to LCDR Dick Penn and LCDR Frank Shelly, was predicated upon the location of existing Air Stations. marine traffic, population centers, the anticipated SAR workload resulting from the explosion in pleasure boating by the public, and the range and performance capabilities of the HH-52 helicopter. A job

well done – as of 2006 only one of the initially recommended air detachments has been closed upon reevaluation.

Itemized construction cost estimates were made for (1) Those detachments requiring construction at Civilian Air Fields (2) Those detachments utilizing leased space at civilian fields (3) Those detachments requiring construction at existing Coast Guard units (4) Those detachments utilizing leased space at existing military aviation facilities.)

The required funding for a five year period was spread out into roughly equal annual expenses for budget purposes. The plan was reviewed and updated yearly. This would be a continuing process; Criteria for unit location was amended. SAR statistics were utilized but were found to be the heaviest where the SAR facilities were located and the distance from the SAR facility. For future planning, the SAR statistics were correlated with population data, commerce, marine activity, and the income generated by boating activity. This combination, along with the realization that it was much less expensive to be a tenant on an existing facility, was used for site selection. An Air Detachment was established in Los Angeles in 1962 followed by Savannah and Houston in 1963. and Astoria in 1964.

A recommendation made in the Re-Evaluation was that at the end of four years a careful evaluation of the effectiveness of new Air Detachments, new aircraft types, and aircraft deployment be made. Miami was moved from Dinner Key to Opa Locka in 1965 because of the limited operational facilities at Dinner Key. At a later date St. Petersburg was moved to Clearwater for the same reasons. This, in conjunction with the commissioning of an Air Detachment at Savannah, eliminated the need for Air Detachments at Cape Canaveral and Ft. Myers. Guam was decommissioned in 1965 followed by Argentina and Bermuda in 1966. Sangley Point was closed in 1977.

With desired aircraft coming on board, Air Detachment locations were again evaluated using the information obtained from previous installations. Air Detachments were referred to as Air Stations now and Detroit was established in 1966. BOTU had been established at Savannah and was moved to the new Air Station at Mobile as was the fixed wing operation at Biloxi. Chicago opened in 1969. Salem Air Station and the Quonset Air detachment moved to Cape Cod in 1970. San Juan moved to Borinquen in 1971 and North Bend was opened up in 1974.

This process continues today, Changing missions and responsibilities as well as the service life of various aircraft require constant evaluation, planning and responses. The process has been refined and with the advent of *Deepwater* is more sophisticated. That being said, it is well to remember that these early efforts and the people that made them had a significant impact on Coast Guard aviation and the Coast Guard as a whole.

1962 - UF-2G (HU-16) certified for nine world class records for amphibian aircraft --- Federal Aeronautique International –

An excerpt taken from *Kicking Tires and Lighting Fires* by C.W. Swickley and augmented by photographs from the personal collection of CAPT W. C. Dahlgren. USCG

At CGAS Brooklyn in early 1961, CDR Wallace C. "Wally" Dahlgren had a conversation with CDR Fletcher Brown, who was a liaison officer with the U.S. Navy and visiting CGAS Brooklyn, who raised the idea that the Grumman UF-1G could probably break a lot of records for seaplanes. This was news to CDR Dahlgren; but very interesting. While browsing through some literature on FAI world records, he came upon several records for amphibian type aircraft. What intrigued Dahlgren was that the Grumman Albatross was capable of breaking many of the old records, or where no previous record existed, setting new ones. By his calculations, the Albatross was capable of setting 23 new marks. The idea that germinated in his mind was, why not do it?



Before setting such an ambitious scheme into action, Dahlgren first had to sell the idea. Sending a letter through the chain of command, requesting authorization to make the attempt, was the first step. The commanding officer forwarded Dahlgren's letter to Third Coast Guard District with a noncommittal "For consideration" endorsement, but by a fortuitous quirk of fate, Headquarters transferred Dahlgren to the Third District as SAR Officer. Thus, Dahlgren found himself in the unique position of recommending approval for his own request. As he later stated, "It was hard not to get a favorable endorsement!"

After being told by Coast Guard Headquarters that these things were usually funded by the manufacturer with operating and crew expenses provided by the service involved, he broached the idea to the Grumman folks at Bethpage. Grumman was all for the idea, and while pledging their support, insisted on including the other major Albatross users, namely the Navy and the Air Force.

Dahlgren, duly placed in charge of the project, worked closely with Grumman to develop a plan. Since administrative expenses for each attempt ran in the neighborhood of \$1,000, and since Grumman was picking up the tab, Dahlgren decided to challenge only nine of the most significant records. The Coast Guard, Navy, and Air Force would share in the glory, each setting three records. Accordingly, CGAS Brooklyn was tasked to provide the Albatross and maintenance support for the Coast Guard and Navy attempts while the Air Force indicated it would provide a plane of its own.



7255 Ready for departure Kodiak



7255 landing Pensacola Bay

The Air Station chose a recently overhauled Albatross, UF-2G 7255, but before making any attempts at records, the engineering department took several measures to better prepare the plane. The 7255's engines were replaced with the lowest oil-burners and an auxiliary oil tank was installed in the cabin. A series of pumps, valves, and connecting lines made it possible to send replenishment oil out into the nacelle tanks. Then to add lightness, mechanics stripped insulation and other nonessentials from the plane. Since the standard fuel gauges lacked the desired accuracy, mechanics installed "boiler tube" glass sight gauges similar to those used in the old Grumman JRF Goose. This made it possible to readily see the last 600 pounds of fuel. A final measure was to install a Doppler navigation system and 7255 was ready to go.

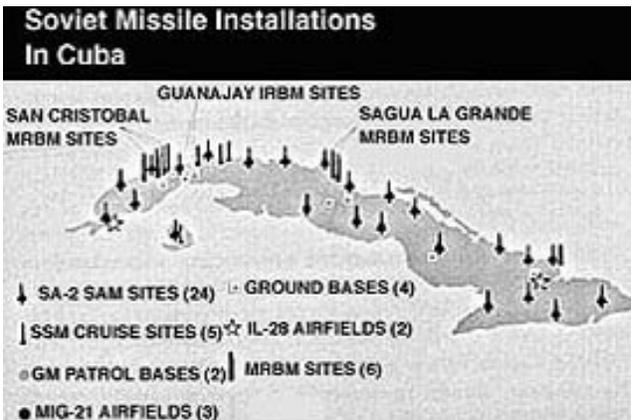
Records for amphibian aircraft established by Coast Guard UF-2G (HU-16E) 7255.

- Speed over a 1,000 km closed course with a 1,000 kg load: Established by CDR Wallace C. Dahlgren, USCG and CDR William G. Fenlon, USCG on 13 August 1962 at a speed of 201.5 knots.
- Speed over a 1,000 km closed course with a 2,000 kg load: Established by CDR Wallace C. Dahlgren, USCG and CDR William G. Fenlon, USCG on 13 August 1962 at a speed of 201.5 knots.
- Speed over a 5,000 km closed course with a 1,000 kg load: Established on 15 and 16 September 1962 by LCDR Hoffman USN, flying Coast Guard HU-16E 7255 at a speed of 131.5 knots.
- Altitude with a 1,000 kg load: Established on 12 September 1962 by LCDR Moore, USN, flying Coast Guard HU-16E 7255 at the altitude 29, 475 feet..

- Altitude with a 2000 kg load: Established on 12 September 1962 by LCDR Franke, USN, flying Coast Guard HU16E 7255 at altitude 27,405 feet.
- . Distance--non-stop: Established on 24 October 1962 on a flight from USCG AIRSTA Kodiak to the US Naval Air Station at Pensacola, a distance of 3,104 miles, by CDR William G. Fenlon, USCG, CDR Wallace G. Dahlgren, USCG, LT W. Senn, USCG, and CPO W. Taggart, USCG.

1962 – The Cuban Missile crisis:

In October 1962, the United States and the Soviet Union came to the brink of nuclear war over the placement of Soviet missiles in Cuba. The United States armed forces were at their highest state of readiness ever and although not known at the time, Soviet field commanders in Cuba were prepared to use battlefield nuclear weapons to defend the island if it was invaded. For 13 tense days, a fragile peace hung by only a thread as the United States instituted a naval blockade of Cuba to turn back Soviet ships. The crisis was ended when the Soviet Union agreed in a secret negotiation to remove its nuclear weapons from Cuba in exchange for a U.S. agreement to remove its nuclear weapons from Turkey six months later.



The Soviet Union was desperately behind the United States in the arms race. Soviet missiles were only powerful enough to be launched against Europe but U.S. missiles were capable of striking the entire Soviet Union. In late April 1962, Soviet Premier Nikita Khrushchev conceived the idea of placing intermediate-range missiles in Cuba. A deployment in Cuba would double the Soviet strategic arsenal and provide a real deterrent to a potential U.S. attack against the Soviet Union.

Meanwhile, Fidel Castro was looking for a way to defend his island nation from an attack by the U.S. Ever since the failed Bay of Pigs invasion in 1961 Castro felt a second attack was inevitable. Consequently, he approved of Khrushchev's plan to place missiles on the island. In the summer of 1962 the Soviet Union worked quickly and secretly to build its missile installations in Cuba.

It was known by the United States that defensive missiles had been introduced into Cuba as well as IL-28 bombers. Offensive weapons were suspected and on 6 October U.S. Military forces were brought to a state of increased readiness. A U-2 flight over Cuba on 14 October produced the first hard evidence that offensive missile sites were under construction in Cuba. Intelligence agencies also confirmed that numerous Soviet Vessels were enroute to deliver what was believed to be missiles and missile parts.

During the next very tense days, all options, including the invasion of Cuba were evaluated. The final decision was to impose a U.S. Naval "quarantine" of Cuba. (The word "blockade" was not used because it would be considered an act of war). President Kennedy said the missiles sites must be removed and he was prepared to use force if necessary.

On Oct. 23, U.S. naval ships took positions on the quarantine line at 25 degrees N and provisions for aerial surveillance flights were put in place. The USS ESSEX with two S2F squadrons was assigned to patrol the zone north of 25 degrees. P5M's of VP-49 and VP-45 were tasked with the



official would reveal that mobile tactical nuclear weapons and more than 40,000 Soviet troops were in place in zone north and east of 25N,65W. VP-5 based out of Roosevelt Roads was tasked with the zone east of the quarantine line and south of 25N. The U.S. Coast Guard Miami Air Station was tasked with the zone that extended west from the Tortugas along the northern coast of Cuba and then northerly through the Bahamas to 25N. Air Station Miami was immediately supplemented with additional Hu-16E aircraft, crewmembers and maintenance personnel from other air stations throughout the Coast Guard. The patrol zone was broken down into patrol areas and designated as Red – Green – and blue patrols. The patrol surveillance flights were 5-8 hours long and there were usually 2-3 aircraft on these patrols. Pictures were taken of all vessels and all surveillance information was forwarded to intelligence agencies. It was a 24 hour a day operation. It is important to point out that during this period that the Air Station Miami retained the responsibility for Search and Rescue operations throughout the entire area. At the time, this was the largest operational mission the Coast Guard had ever flown. The air station, located at Diner Key could not support the operation without a supplemental facility so operations were also conducted from the former Marine Corps Air Station at Opa-Locka.

On Oct. 26, Khrushchev pledge to remove the missiles if the U.S. guaranteed it would not invade Cuba. Kennedy accepted and the immediate crisis ended. Verification was needed however so the President ordered the quarantine line be maintained and low level surveillance flights be continued while details were made for removal of offensive weapons from Cuba. The Coast Guard continued to make patrols.

On November 21: Just over a month after the crisis began, The President terminated the quarantine when Khrushchev agreed, after several weeks of tense negotiations at the UN, to withdraw Soviet IL-28 nuclear bombers from Cuba. Three decades later a Soviet military Cuba for use in the event of an American invasion.

Supplemental Coast Guard aircraft and crews returned to their home air stations at the end of November but the continuing operational responsibilities at the Miami Air Station would remain larger than before. The end of the missile



crisis brought on expanded rescue operations related to Cuban immigration which was not encumbered at the time. The number of people

leaving Cuba would increase steadily over the next several years using any means available reaching a climax when Castro allowed well over 3000 people to leave the port of Camarioco. It also became apparent that the water only facilities at Diner key were not capable of supporting the Coast Guard mission and the air station moved to Opa-Locka in 1965,

1962 - First Coast Guard wide Standardization Manual for aircraft operation was published. The manual was for the HU-16 Albatross:

The post World War II fiscal retrenchment and the frugality of the Coast Guard resulted in an assortment of previously used aircraft obtained from other services. The operating procedures varied with the aircraft and the Air Station and few of them were in agreement. The accident rate was much lower than might be expected because by today's standards the aircraft were relatively uncomplicated. The Coast Guard Aviation Plan began the introduction of new aircraft into the service in the early 1960s and for the first time gave direction and continuity to Coast Guard aviation.

During this period, serious doubts were being raised as to the inevitability of aircraft accidents and positive steps toward aircraft accident prevention was initiated. Safety centers were established and a formal course of education for the training of aviation safety officers was developed at the University of Southern California. The Coast Guard established a flight safety billet at headquarters and commenced sending experienced aviators to the USC course. The object was to provide each Air Station with a trained flight safety officer. Commander Marion "Gus" Shrode, USCG, was the Chief, Aviation Safety Branch from 1961-1964. Under his direction, flight safety began to take on meaningful form and commenced its long advance to the present day.

One of the first concerns of the headquarters safety billet was to reduce the pilot factor accidents in the HU-16. There were procedures being utilized, both in and not in the Flight Handbook, that were not desirable but that publication was under Navy control and with all the high performance combat aircraft being used by the Navy the HU-16 was not high on the priority list for revisions. It was decided to evaluate all of the individual unit standard operating procedures and write a Coast Guard standardization manual for the HU-16. There was wide variance in the procedures used at Air Stations resulting in a formation of a six man board composed of experienced officers representative of all areas of Coast Guard aviation. This board brought forth the HU-16 Standardization Manual and a kneepad checklist as well. The board made an additional recommendation that had a profound effect on standardization, flight safety, and the fostering of general professionalism in the ensuing years. They recommended that a training command be established – thus was planted the seed for the current Aviation Training Center.

The HU-16 Standardization Manual was well received and similar procedures were instituted for other Coast Guard aircraft. When the HH-52 was procured, a standard instruction team was established to transition all units. Standardization procedures were entered into the Flight manual

for the HH-52 as written by the Coast Guard. Manuals for the C-130 and the HH-3E were similarly adapted in this fashion. The Aviation Training Center in Mobile Alabama now provides complete training for all operational Coast Guard Aircraft with the exception of the C-130. C-130 training is provided by another Military training facility. The concept spread from the Aviation Training Center leading to the establishment of the Aviation Technical Training Center for the technical training of aircrew and maintenance personnel.

The scope and quality of training afforded at both of these establishments has far exceeded their original concepts, and Coast Guard airmen in all categories can now lay claim to the highest rank of competence and professionalism.

1962 - Coast Guard Air Station Los Angeles established:



Coast Guard Air Station Los Angeles is located at Los Angeles International Airport (LAX). The unit began as an aviation detachment in August 1962, with one HO-4S helicopter from Air Station San Diego. Air Station Los Angeles was commissioned in November 1962 with two HO-4S helicopters, nine officers, and twenty enlisted personnel. In May 1963, the unit switched to three HH-52A "Sea Guard" helicopters, which remained in service until November 1987. At that time the station transitioned to its current aircraft, HH-65A "Dolphin" helicopters. Fifteen officers and 45 enlisted personnel presently staff the air station.

Air Station Los Angeles maintains a Search and Rescue helicopter 24 hours a day, 365 days a year and is responsible for protecting the coastal area of Southern California from Dana Point to Morro Bay. On average, 200 SAR (search and rescue) cases are prosecuted every year. In addition to SAR, Air Station LA helicopters provide Homeland Security Patrols for the Ports of Los Angeles and Long Beach, and Port Hueneme in Ventura County.

The Ports of Los Angeles and Long Beach comprise the largest cargo seaport in the United States and the third largest in the world moving over 7 million containers every year. In Addition to container traffic, the seaport is also the largest Cruise Ship port on the west coast. Additional Homeland Security responsibilities include the over water approach and departure corridors for Los Angeles International Airport, which handle more international flights than any other airport in the country.

The Air Station responsibilities also include, Law enforcement, Aids to Navigation, Environmental Response, and Military Operations. In addition, Air station helicopters deploy to Coast Guard Cutters. Of the many missions that Air Station Los Angeles participates in, Public Affairs offers the most unique opportunities. The air station's proximity to several Hollywood

production studios allows for many varying public affairs missions increasing public awareness of the roles the United States Coast Guard fulfills in protecting our shores and citizens.



1963 - The first of 99 HH-52A helicopters entered Coast Guard service:



The Coast Guard Aviation Plan of 1957 called for 79 medium range helicopters capable of proceeding offshore at a reasonable speed to a distance of 300 nautical miles, hovering for 20 minutes while picking up at least six survivors and then returning to base with a fuel reserve equal to 10% of the initial fuel load. The Board preferred a multi- engine turbine powered aircraft. Those available were larger in size than envisioned, in limited production at the time, and expensive. The Sikorsky HUS (H-34), a piston engine

powered helicopter, met the requirements and was selected for purchase. Three P5Ms, 14 UFs and six C-130Bs purchased as part of the plan resulted in a limited purchase of only six HUS due to budgetary limitations. Three of the original six crashed while in a hover. two of unknown causes, and in 1962 the Coast Guard was looking for a different helicopter to meet requirements.

Options were limited. Sikorsky had designed, a single engine, turbine powered, amphibious helicopter designated the S-62. The S-62 had been designed for the commercial market but was not purchased in great numbers. The engine was deemed too big and expensive and passenger carrying capability was limited. None of the other military branches were interested in it either. The Army was having problems with the HU-1 Huey at the time but was completely committed

to the program. The Navy was committed to the Kaman H-2 and was having problems with it also. The Air Force was not particularly interested in helicopters at this time.

The S-62 however, had features that were desired by the Coast Guard. It floated on an amphibious hull, it had turbine power, had a large main cabin and it was built utilizing proven components. The automatic stabilization system used on the S-62 was a scaled version of the larger S-61 (SH-3). The rotor system came from the S-55 (HO4S), as did most of the drive system which had already proven to be reliable. The assembly was design limited to 730 shaft horsepower. Small jet engines suitable for helicopters were rare and not available in this size. Sikorsky solved the problem by using a 1230 SHP General Electric T-58-GE-8B engine and derating it. With the extra 500 HP worth of air capacity on the front end density altitude was not an operational problem.

The Coast Guard needed a helicopter and Sikorsky needed to sell the S-62. Unlike Department of Defense agencies, the Coast Guard could buy a non milspec aircraft. Sikorsky approached the Coast Guard and offered the S-62. Previous problems with the HUS created hesitancy on the part of the Coast Guard resulting in Sikorsky Aircraft agreeing to test the S-62 for Coast Guard use at the manufacturer's expense.



The Navy test facilities at Patuxent River Maryland were utilized and LCDR Frank Shelly USCG, a graduate of the Navy Test Pilot School, was assigned to the project as test pilot and program coordinator. Shelly worked closely with Sikorsky Aircraft in the initial and test phases of the HH-52. He designed and set up the test program. It consisted of Coast Guard operational requirements, the verification of Sikorsky's performance claims, and anticipated maintenance requirements. During the many hours of flight testing the "beep to hover" autorotation and the "beep to hover" procedures were developed. The "beep to hover" meant the completion of countless night over water missions and the safety of many HH-52 crews. The helicopter performed well and the Coast Guard signed on.

Originally designated the HU2S-1G it became the HH-52A. It had a rotor diameter of 53 feet, a range of 474 miles and a top speed of 109 mph. It was an extremely flexible rescue aircraft that could fully perform missions with a minimum crew. It was well suited for night and all-weather flight. The HH-52 had a hydraulic hoist and carried a rescue basket. The cabin could accommodate up to ten passengers or six litters. It was fully amphibious and was equipped with a removable foldout rescue platform that looked like a large extended step. It was a rectangular grid that sloped slightly downward beneath the waters surface when the helicopter was afloat. Incapacitated survivors could be scooped or dragged onto it greatly facilitating their rescue.

.On January 9, 1963 the U.S. Coast Guard received the first of 99 Sikorsky S-62's which were given the designation HH-52A and the name "Seaguard", a name which never caught on amongst those who flew it. The HH-52 was the Coast Guard's first amphibious, turbine-powered helicopter.

The HH-52, with over 15,000 lives saved in its twenty-five years of service, has the honor of having rescued more persons than any other helicopter in the world. This little helicopter, a unique assemblage of proven parts, comfortably behind the cutting edge, performed astounding feats in thousands upon thousands occasions. It became the international icon for rescue and proved the worth of the helicopter many times over. It had an enormous impact on Coast Guard aviation.



Beep to Hover

The following is an abbreviated version of then LCDR Frank Shelly's commentary on the development of the Beep to hover maneuver. Shelley was the HH-52A project test pilot. He was ably assisted by ADCM Clayton Roll.

A helicopter approach to landing is contrary to everything taught for a fixed wing *Stabilized Approach* wherein the same speed over the final approach point is maintained to a half mile out and continued until the round out over the runway. The helicopter, on the other hand, wants to go from cruising speed at altitude to zero speed four feet above the landing spot. This means that the helicopter is decelerating and descending at the same time on approach. During daylight VFR operations the pilot is able to observe visual reference indications that make the maneuver easier than it sounds. Close in adjustments are within the capability of the helicopter. Instrument flight or night over water operations (essentially instrument flight) is something else. That was why the artificial stability systems with an auto hover feature in the HUS generation of helicopters were so welcome. The pilot, however still had to monitor rotor/engine RPM.

Constant RPM in flight is of extreme importance. There are two reasons for this, one is structural and the other is power related. We can not make the rotor constant speed like an aircraft propeller because rotor pitch angle is related to the angle of attack resulting in a constant messing with the lift. Instead a change in torque must be provided by a governor working directly on the engine. The governors available at the time were not sensitive enough to keep a piston engine at constant RPM with varying torque demands. Enter the free turbine jet engine such as the one in the HH-52A. With the engine power turbine spinning up at 27,000 to 30,000 RPM a one percent change could be easily sensed by the governors available at the time. They could then be used to adjust the fuel control

to increase/decrease the fuel input which increased/ decreased the temperature which either spun up or down the compressor giving an increase/decrease of flow through the power turbine. Thus the pilot could set the desired RPM and not have to monitor it.

There is an additional aerodynamic feature that enters into the equation. When a helicopter rotor system is in a hover, the lift is generated solely by the airflow from rotation. However the plane of rotation equates to a disc and if this disc translates in any direction so as to generate an airflow of more than six knots across the disc, an additional lift is generated. The faster the disc is moved in any direction, the more “translational lift” is produced. At cruising speed, it is a significant portion of the lift holding the helicopter up. If the rotor disc is tilted slightly back during cruise you lose some of the forward thrust vector and the helicopter slows and as a result you lose some of the translational lift. The turbine governor keeps the rotor turning at the same speed and the rotational part of the lift remains constant. You do however have a decrease in overall lift and the helicopter starts to descend.

During the evaluation and test of the HH-52 numerous transitions to hover were made during which altitude/airspeed check points were recorded as the maneuver progressed. Armed with this information Shelly and Roll reasoned that just putting a little “beep” of back trim on the electric trim button in level flight would start the deceleration/descent. (It could be accompanied by a small initial power reduction) Then as each check point “window” was reached feeding in another “beep” kept the maneuver going. It was a pretty much hands off, feet on the floor with maybe an extra withheld “beep” or a power tweak to hit each window.

To use this maneuver to investigate something on the water at night, the pilot would fly over the object on a down wind heading proceeding outbound for a couple of minutes while descending to the initial radar altimeter altitude. A procedure turn, similar to a no vector, non-precision instrument approach, was used to bring the helicopter back into the wind where a final approach was started. With any reasonable weather conditions, whatever it was that you wanted to look at was in front of you when you got to a 20 foot radar altitude and zero airspeed. The same procedure was utilized in areas of reduced visibility. The Mobile training center later taught a teardrop pattern to save time but the principle remained the same.

With a modern electronics suite and automatic flight control systems this procedure is both primitive and not necessary. At the time, however, it greatly expanded the operational capabilities of the aircraft and resulted in the rescue and saving of lives that otherwise would not have been possible.

1963 - The VC-4A executive transport was purchased:



The Coast Guard acquired a special ordered G-159 Gulfstream 1 executive transport from Grumman Aircraft Corporation on 19 March 1963. Designated VC-4A it was based out of National Airport in Washington, D.C. and used to provide air transportation on a demand basis, to the Secretary of Treasury and members of his staff, the Commandant, U.S. Coast Guard and members of his staff and such other personnel as may be authorized by the Commandant.

The Gulfstream, a commercial aircraft designed for civil use required the implementation of a support system and aircraft maintenance procedures. LCDR John Moseley was assigned this project. Extensive consultation with the Grumman Aircraft Corporation and Atlantic Aviation Incorporated resulted in a maintenance procedure that was unique for its time in that the aircraft was constantly under check but never out of service except for grounding discrepancies and/or major component change requirements. The system proved very successful and was used by NASA for its fleet of G-159 aircraft. Part support was provided by Grumman Aircraft Corporation.

The Coast Guard ordered a second VC-4A but cancelled the order before delivery. In September 1983 the VC-4A was transferred to Air Station Elizabeth City and then to Miami where it was used as a logistics and Long Range Command and Control aircraft for the Seventh Coast Guard District. On 19 September 2001 the Coast Guard procured a "previously owned" VC-4, Gulfstream I aircraft, from NASA, for replacement of the originally procured Gulfstream I.

Manufacturer	Grumman
Designation	VC-4A
Aircraft Type	Fixed-wing twin-engine transport
Wing Span	78' 4"
Height	22' 9"
Length	64' 6"
Fuel Capacity	1,550 gallons
Top Speed	348 mph at 25,000'
Cruising Speed	288 mph at 25,000'
Range	2,540 miles
Gross Weight	35,100 pounds
Crew	2 crew –12/14 passengers
Service Ceiling	26,000'

1963 - Air Station Savannah established:



The Coast Guard Air Station Savannah was commissioned in the August of 1963 on what was then known as Hunter Air Force Base. On a grassy open space at the north end of the base were two new house trailers that would serve as office and shop space until a permanent building was completed. In addition there were two large nose docks designed for B-47 bombers and a permanent hangar 200 yards to the east. Construction of the new Administrative building commenced immediately.

The first HH-52 arrived in mid July and training in the new aircraft commenced. The transition training was done by a “transition team” that checked out each unit as they received their new aircraft. The Coast Guard invested much time and effort into developing an HH-52A Pilots

Handbook with all the procedures spelled out. Later, standardization teams formed to periodically visit all air stations and insure that all pilots were flying by the book. This led to the establishment of a special training unit providing flight training graduates their HH-52 checkouts. The Basic Operational Training Unit (BOTU) was established at Savannah in 1964. This function transferred to the Aviation Training Center at Mobile, Alabama when it opened in 1966.

Since 1963, Air Station Savannah has provided search and rescue (SAR) coverage 24 hours a day, 365 days a year, for the Atlantic Coast from the northern border of South Carolina to Melbourne, Florida, averaging more than 250 SAR cases a year. Other missions include maritime law enforcement, drug interdiction, aids to navigation, marine safety and environmental protection.

Aircraft are routinely deployed aboard Coast Guard cutters along the East Coast and throughout the Gulf of Mexico and the Caribbean. While not permanently assigned to a specific ship, aviation detachments from Air Station Savannah become an integral part of the Coast Guard team. The capabilities of the deployed helicopters greatly increase the chances of seizing illegal contraband, sighting vessels carrying illegal migrants, and generally maintaining more effective vigilance over patrol areas. The Coast Guard HH-65A is also an important Search and Rescue (SAR) asset while on board. During most deployments, Coast Guard Cutters will maintain one HH-65 helicopter and an aviation detachment consisting of two pilots and two or three flight mechanics.



HH-65C

Air Facility Charleston became operational on October 1, 1990, with daylight search and rescue response by crews deployed from Savannah. In 1993, with the completion of a multi-million dollar support facility, aircrews at the facility began providing around the clock SAR response in the northern sector of the Air Station's area of responsibility.

Siler Hall and the new operations center were completed in 1996, providing the Air Station and local commands, with a state of the art training venue. This, combined with various leading initiatives such as the infrared imaging system, will ensure that Air Station Savannah remains at the forefront of Coast Guard Aviation.

1963 - Coast Guard Air Station Houston is established:



Coast Guard Air Station Houston was commissioned 23 December 1963. Located on one acre at Ellington AFB, 17 miles SE of downtown Houston Texas. Two HH-52 helicopters, seven officer/pilots, and 18 enlisted mechanics/aircrewmembers set up shop in a 24,000 square foot hangar built in 1942. An alternative site at Scholes Field, Galveston Texas, was considered up until the actual commissioning at Ellington. The establishment of the air station coincided with the blossoming of the NASA complex, then called the Manned Spacecraft Center.

The air station routinely participated in the hoist training program for the astronauts as they participated in egress drills from space capsules in the Gulf of Mexico. A third helicopter was added in 1974 and a

fourth in 1978. In 1989 the first of the HH-65 helicopters arrived. A 1983 study was in progress to determine a relocation site when Ellington AFB was closed and formally turned over to the city of Houston and named Ellington field.. A decision was made to build a new Coast Guard hangar at the north end of Ellington Field.

SAR is a large responsibility at the Air Station. Houston is in an area of severe hurricane activity and experiences a large number of storms. Houston port activity and considerable oil related activities in the area also contribute to the SAR workload. During the year 1999, for instance, Air Station responded to and completed 301 SAR cases. Pollution control is also a large responsibility.

The Air Station Helicopters routinely deploys upon Coast Guard cutters in the Gulf region and during a six month period in 1997 a helicopter and crew were deployed on USCG LEGARE (WMEC 912) for the first operational deployment of a 270 foot Coast Guard Cutter to the Department of Defense sponsored Baltic Sea operations.



L/R
AT1 Nielson, CAPT Shrode USCG, LT. Gen Stafford,
CAPT Schirra

1964 - Coast Guard Air Station Astoria Oregon Established:

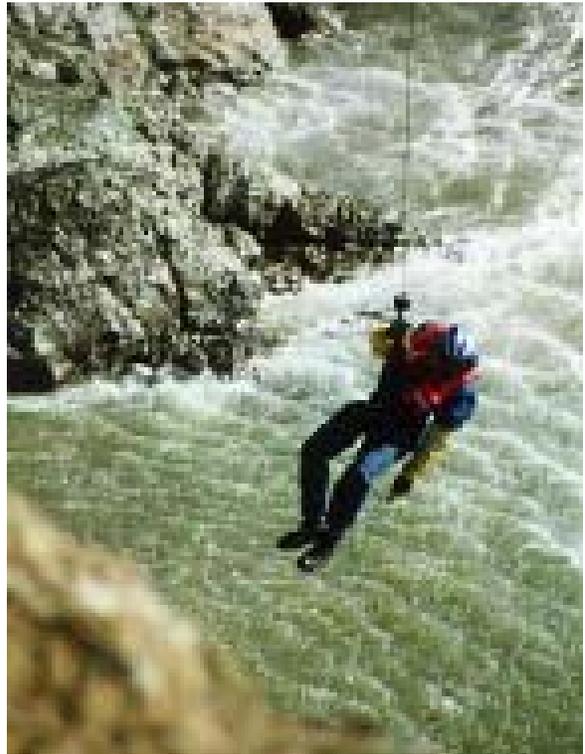


Coast Guard Group/Air Station Astoria was established on 14 August 1964 at Tongue Point Naval Station with a crew of 22 officers and 104 enlisted men. Two single engine Sikorsky HH-52A Seaguards were operated from that location. These helicopters staged from the Port of Astoria Airport during periods of inclement weather. This was done until the Air Station was permanently moved to its present location at the airport on 25 February 1966. The HH-52A helicopters were replaced with three larger twin engine HH-3F Pelican helicopters in March 1973. Two HU-25A Falcon jet aircraft were assigned to the Air Station in October 1983 to enhance the law enforcement effort as well as contribute to Search and Rescue (SAR) and logistical missions.

The larger helicopters and the two additional jet aircraft required a larger facility. So a 4.8 million dollar construction and modification project began in 1982 and was completed in August 1984 resulting in a two-fold expansion on the hangar building. It also resulted in a new medical building and a new shop building. A third HU-25A Falcon was added in June 1988. Then in September 1987 the HH-3F Pelicans were replaced with 3 HH-65 Dolphins. In 1995 both the HU-25A Falcons and the HH-65 Dolphins were replaced by the HH-60J medium range recovery helicopters.

Group/Air Station Astoria has an area of responsibility which stretches from the Queets River on the Washington coast south, to Cape Kiwanda on the Oregon coast; and the Columbia River east of Longview Washington. The Group provides support functions to all units stationed in Northwest Oregon and Southwest Washington. The group also provides operational support to the National Motor Lifeboat School and the Advanced Rescue Swimmer School, both located in Ilwaco, Washington.

The rescue Swimmer Program has evolved dramatically from the initial concept. In 1995 it was recommended that advanced training be provided in hazard awareness and various new procedures, techniques and equipment that rescue swimmers did not receive in Rescue Swimmer School or normally encounter during operations at their air stations. Astoria was determined to be the best location for such a school, as the rugged coastline, demanding surf and prevailing high seas provided ideal training conditions. In April of 1966 the Coast Guard Advanced Rescue Swimmer School was established. Twice a year for one month periods, advanced rescue swimmer training is conducted for pilots, hoist operators, flight mechanics and rescue swimmers from all Coast Guard air stations.



1964 - The first of the 210 foot Coast Guard Cutters were launched. They were designed with a helicopter landing platform but no hangar:



HH-52A on deck – note landing gear grid

A long range plan, suggested by the Assistant Secretary of the Treasury, to address the obsolescence of the cutter fleet was undertaken in 1959. The first cutters built under this plan were thirty six 95 foot patrol boats followed by seventy nine 82 foot patrol boats. Meanwhile the first postwar cutters were being designed to replace the 125 and 165 footers. They were the first cutters, designed from the keel up to facilitate helicopter operations. The helicopter landing platform required a minimum 200-foot waterline.

The initial concept of helicopter operations from cutters was pioneered by Frank Erickson during the Coast Guard development of the helicopter during World War II. Operation High Jump and subsequent Artic and Antarctic operations demonstrated the value of the helicopter to the icebreaker. The concept, strongly supported by their Commanding Officers, did not carry over into the rest of the cutter fleet at the time. However, CAPT John P Latimer, a LT at the time, while attending postgraduate school after WWII, with assistance from CDR Frank Erickson and LT(jg) Art Pfeiffer, did a design project of a ship with a helicopter landing platform. It was about the size of the future Hamilton Class cutters with a configuration similar to the future Hamilton and Reliance Class. Latimer had consulted with Erickson and flown onto ships in the helicopter. His design provided for a helicopter deck and a hangar. Latimer said that he was surprised when he later served a tour in the Headquarters Engineering Section (ENE), that the design had received quite a bit of study by a couple of civilian architects. One of these gentlemen was Sam Frank, who was the senior civilian when the RELIANCE and then the HAMILTON were designed. CAPT Gil Schumacher, Chief of ENE in 1962, with the assistance of CDR CG Houstma and Sam Frank, evolved and pushed through the design.

The outward appearance of these new cutters reflected the evolving nature of Coast Guard operations during the latter part of the 20th Century. They had sleek lines with the most prominent feature being the flight decks. They were originally fitted with transom exhaust ports that provided more room for a larger flight deck and kept the flight deck clear of exhaust smoke. In practice, however, the exhaust system proved problematic. Their high pilot house gave the bridge crew unrestricted all-around visibility, making ship-handling easier. A number of other concerns figured into the design phase including maximum serviceability, improved habitability, long service life, and safety. Two shafts capped by controllable pitch propellers drive these cutters to a top speed of 18 knots. The Cutters have a propulsion plant consisting of two Cooper-Bessemer

Corporation FVBM-12 turbocharged diesel engines. The propulsion system can be remotely controlled from the pilot house, either bridge or wing, or the engine room control booth.

The construction of the 210 foot cutters to provide for helicopter operations was not without strong opposition on the part of some. With many it was an aversion to change but there were legitimate unknowns and problems to overcome. While the model of the vessel was given a thorough evaluation at the Taylor Model Test Basin in Washington D.C., only the characteristics as far as sea handling could be obtained. ENE was emphatic that they had no idea how the vessel would handle or reset with an 8500 pound helicopter on the flight deck. In addition, Sikorsky stated that under static conditions the HH52A helicopter, at normal gross weight conditions, would probably roll over after being tilted past 15 degrees.



CGC VIGILANT conducting flight operations – note transom exhaust ports

There were three vessels under construction at Houston's Todd Shipyard; The RELIANCE being first with the DILIGENCE and the VIGILAT not far behind. The helicopter-shipboard operations evaluation was conducted on the RELIANCE. Headquarters Office of Aviation (OAU), strongly in favor of the helicopter-ship concept, realized that should this vessel not be capable of operating safely with the HH-52A helicopter that the remaining WMEC cutters would be built without the flight deck. With this in mind the Commandant, at the behest of the Chief OAU, directed that a well qualified aviator experienced in open sea shipboard helicopter operations be assigned to assist the Commanding Officer of the RELIANCE in developing a capability for helicopter operations. LCDR John C. Redfield was selected for the assignment.

On May 15, 1964 LCDR Redfield met with CDR Frank Fisher, the prospective Commanding Officer of the Reliance, to discuss the up-coming tests and evaluation. In addition, Redfield obtained permission from Petroleum Helicopters to use their support facilities at their Galveston, Texas support facility. He further obtained the services of Lt William Russell to assist in the program. Russell, with the assistance of the Houston Air Station trained the RELIANCE crew in proper procedures and fire-fighting techniques. The sea trials were delayed until 7 July because of vessel machinery and yard problems. The vessel had a further commitment to be in the Coast Guard Yard, Baltimore, Maryland in early October. This resulted in the sea trials and helicopter operations being conducted simultaneously. LT. Russell was able to provide the crew with some preliminary training while the vessel was still in the shipyard. This was extremely important since the crew, almost to a man, from the officers on down, were new to ship-helicopter operations.

Preliminary evaluation of the helicopter on a metal deck aboard a Navy LST and previous experience aboard the Coast Guard icebreakers indicated the surface of the Reliance would have to be painted with abrasive paint and in addition some form of “chock” would have to be provided to assist in stabilizing the helicopter until the tie down equipment could be attached. The static stability of the helicopter on the helicopter deck required high tie down points affixed to the aircraft above the wheel shock-absorber housing. Extensions were fabricated to enable a person on the helicopter platform to “tie-down” and secure the helicopter. A wooden grid similar to those used by Petroleum Helicopters was designed to fit the RELIANCE flight deck and was constructed by Coast Guard Base Galveston.

On 6 July, with the permission of CDR Fisher, the HH-52A 1356 landed on board the RELIANCE while still tied to the dock. The aircraft was left on the deck, in proper position, in order to mark and paint the deck. On the morning of 7 July the RELIANCE was underway and aircraft operations commenced when five miles off Galveston Beach. They continued intermittently for three days while the vessel underwent sea trials. Numerous landings were made by LCDR Redfield, LT Russell and Sikorsky pilot Mr. Bob Keim. On 10 July the RELIANCE moved off the Louisiana coast to conduct landings with a selected group of pilots from CGAS New Orleans to get their reaction and inputs to the rough draft of an operations bill for helicopter recovery. A total of 170 landings, 20 at night had been made. It was apparent that the RELIANCE was a fine new concept for Coast Guard operations but it had yet to be tested in rough water weather operations.

Early in October, after the RELIANCE had completed work at the Coast Guard Yard, arrangements were made for rough water weather tests upon the arrival of the ship arrived at Corpus Christi, Texas. CDR Frank Shelly, who had done the development and acceptance, flights for the HH-52 joined the group. On 19 November, with a good sea running and a brisk wind, the Reliance moved off shore. Five aviators flew the helicopter over a two day period on different wind and sea combinations. All landings were successful and LCDR Redfield stated that it was apparent that the RELIANCE had the desired characteristics for helicopter operations and was capable of working under sea conditions that were before impossible during wind class icebreaker operations. As a direct result of these test and evaluations the remaining WMEC 210's and follow on cutters were designed for ship/helicopter operations. The larger cutters to come were equipped with hangars.

The full utilization of the ship/helicopter was slow to develop. The 210's had a crew of 70 and helicopter operations were labor intensive and helicopter operations, at that time, did not enjoy the full support of most of the Commanding Officers. The Air Stations were also reluctant to advocate full utilization as a deployment of a helicopter and crew would leave the duty sections short handed. No additional personnel were assigned to compensate for this. Training was conducted and limited SAR utilization took place but operational commitments were controlled by the District Commander and utilization was in direct proportion to his view point. The HQ Floating Units Section and the HQ Office of Aviation Units did not aggressively pursue the concept because they never envisioned at the time all of the uses for the ship/helicopter team. Drug enforcement was not a major factor in 1964 and there were not yet boat loads of people coming from Cuba. The Commander First Coast Guard District was the first to direct all ships capable of carrying a helicopter to do so while conducting fishery patrol and enforcement. The Coast Guards role in the Drug War started in 1976 and the Mariel Boat Lift in 1980. The helicopter/ship combination became indispensable to effectively carry out the mission. Today the concept is fully implanted in Coast Guard operations.

Each cutter underwent a "Major Maintenance Availability" process, or MMA, between 1986 and 1996 at a cost of between 19 and 21 million dollars per cutter. Every cutter received the following modifications and upgrades: improved habitability, improved stability by rearranging tank locations, replacement of all asbestos paneling, increased the berthing space, upgraded the flight deck and helicopter equipment, increased the amount of helicopter fuel carried, improved the evaporator, increased and upgraded the communications and electronics capacities, installed vertical exhaust stacks and associated ballast, and installed a smoke detection system and new fire-fighting equipment.



CGC RELIANCE WMEC 615 – with vertical stack

In the course of Coast Guard history there are numerous things that have been done well that directly affect and improve upon Coast Guard operations. Some of these accomplishments acquire a much greater significance than imagined at the time they were accomplished. Such was the case with LCDR John Redfield. In addition to being a people person who was extremely competent he had the capability to innovate and solve unforeseen problems effectively. The successful evaluation and implementation of the ship/helicopter concept was due largely to his efforts. Without this success the remaining cutters in the immediate building program and those that followed would have been built without helicopter capabilities. Without this capability the Coast Guard would have been significantly restricted in operational capabilities during the years that followed.

1965 - Air Station Miami Moves from Dinner Key to Opa-Locka Airport:



In November of 1965 the Coast Guard Air Station Miami relocated to the Opa-Locka airport located fourteen miles northwest of downtown Miami. The Air Station had been at Dinner Key since first established in June of 1932. The move was necessitated because of the dramatic increase in mission workload and the lack of runway facilities for land based aircraft. Opa-Locka was originally built as a Naval air station during World War II. The Navy moved out and left the facilities to the US Marine Corps. The Marine Corps Air Station

closed in 1957 and the airport came under the control of the Dade County Airport Authority.

The Search and Rescue mission continued to grow climbing rapidly to over six hundred search and rescue cases per year. Marine Environmental Protection Patrols came into being and in the late 60's law enforcement duties became significant. In 1973 the foundation was laid which lead to the Coast Guard becoming a dominate force in drug interdiction. The air station had a helicopter deployed almost continually on one or more Coast Guard Cutters engaged in drug interdiction.

By 1976 both the HU-16E and the HH-52A were requiring increased maintenance due to their age. The HU-16E faced a mandatory requirement at the 11,000 hour mark. The HH-52A required greater effort in corrosion control due to the significant increase in shipboard deployment time. In July of 1977, the air stations seven, twenty six year old, HU-16s were replaced. In their lifetime they had logged over 10,000 hours, flown 13,800 Search and Rescue missions and given aid to 108,000 people. The interim replacement aircraft was the HC-131, a twin engined medium range transport. These were in turn replaced by the HU-25A medium range, twin engined jet, search aircraft. It would be 1984 before the HH-65 started to come on the line.

On April of 1980 the government of Cuba opened the Port of Mariel to any Cuban who cared to depart the island. Thus began a massive civilian boat lift. In two months over 100,000 refugees crossed the 100 miles of open sea to Florida. Air Station Miami became the focal point of the Coast Guards air-sea rescue response. Coast Guard aircraft and crews from all over the country were repositioned in South Florida. 1981 saw the start of another boat lift, this time from Haiti. Alien interdiction continues to the present.



In February 1982, Vice President Bush announced that a joint federal task force would be formed in South Florida to combat the increasing flood of narcotics. The Coast Guard rapidly developed a lead role and Air Station Miami was into drug interdiction in a big way. This also continues. To the present.

As a result of the terrorist attacks of 9/11 the Coast Guard was transferred to the newly formed Department of Homeland Security in November of 2002. As the name implies the air station is very much involved in security measures. This is on top of all previous responsibilities.

1966 - Air Station Detroit Michigan established:



Commissioned in June 1966, Coast Guard Air Station Detroit is located twenty miles north of Detroit on Selfridge Air National Guard Base, Michigan. The original complement of ten officers and twenty-nine enlisted people, equipped with three Sikorsky HH-52A Seaguard amphibious helicopters, quickly became an integral part of the Coast Guard's National Search and Rescue (SAR) effort and the aviation hub for the Ninth Coast Guard District, headquartered in Cleveland, Ohio. Since it's commissioning, Air Station Detroit has been credited with saving over 1000 lives and assisting countless others.

Air Station Detroit has received two Coast Guard Meritorious Unit Commendations for completion of missions ranging from Maritime Law Enforcement and Marine Environmental Response to Search and Rescue in an area extending from Lake Superior to Louisiana and West Virginia to the St. Lawrence Seaway.

The Air Station's hangar facility is dedicated to Lieutenant Jack C. Rittichier, a Coast Guard aviator killed-in-action during the Vietnam conflict. Lieutenant Rittichier was assigned to Air

Station Detroit from 1966 to 1968. He volunteered to serve an exchange tour with the U.S. Air Force as a SAR pilot rescuing downed pilots from the jungles of Southeast Asia. Lieutenant Rittichier's HH-3 helicopter was shot down as he attempted to retrieve a fellow aviator. For his courage and ultimate sacrifice to his country, he was awarded the Silver Star, three Distinguished Flying Crosses, three Air Medals and the Purple Heart.

Air Station Detroit maintains a 24-hour Search and Rescue (SAR) and Law Enforcement (LE) aircraft on alert for an area extending along 1,100 miles of shoreline from Saginaw Bay Michigan to the St. Lawrence Seaway. The HH-65 Dolphins are the world's most sophisticated SAR helicopters, fully IFR capable. Detroit conducts over 230 SAR missions annually that save an average of more than thirty lives and provide assistance to over two hundred others.

In addition to SAR and LE missions, Air Station Detroit conducts flights in support of domestic icebreaking operations, Marine Environmental Protection or MEP, and mission support for over two hundred local, state, and federal agencies. The most visible of these missions include response to flooding on the Mississippi and Ohio Rivers; Operation Coal Shovel, the joint United States/Canadian ice breaking effort; and sustained support of pollution response and prevention efforts in two Coast Guard Districts. The unit's multi-mission capability plays a crucial role in public safety, navigability of waterways, pollution prevention, and compliance with Federal laws, and exemplifies the Coast Guard's motto: "Semper Paratus" (Always Ready). Flying approximately 3200 hours annually, the station aircrews have enabled the unit to amass an unprecedented record of over 60,000 accident-free flight hours.

1966 - The Coast Guard Aviation Training Center Established at Mobile Alabama:



The Basic Operational Training Unit (BOTU) formed at Coast Guard Air Station Savannah, Georgia, to provide standardized pilot/aircrew training for the HH-52, had been an unqualified success and Coast Guard Headquarters wished to extend the program to other aircraft. Air station Savannah was located on Hunter Air Force Base. The facility was being transferred to the Army to be used as a helicopter flight training facility. Due to the increased helicopter training requirements, directly related to the Vietnam conflict, the availability of space to accommodate a Coast Guard expansion at Savannah was problematical. A search was undertaken to find a suitable location for an expanded training unit. An Air

Force Reserve facility, in care-taker status, was located on the north side of the municipal airport at Mobile Alabama. The facility consisted of a large main hangar, an Administration Building, and a Public Works Building on 232 acres.

During this same period the Air Force increased training activity at Keesler Air Force Base, Mississippi. This was the location of Coast Guard Air Station Biloxi, charged with fixed-wing Air Search and Rescue resources for the Gulf of Mexico from Cape San Blas, Florida to Sabine Pass, Texas. The Air Station had to be relocated.

A feasibility study with options, funds required, and time-phasing for accomplishment was prepared and approved. The proposed facility would accommodate the current training requirements, support a relocated Biloxi Air Station with its search and rescue responsibilities, and had room for expansion. The Commandant approached the Chief of Staff of the Air Force with a request that the facility be transferred to the Coast Guard. The Air Force was receptive to this and on 17 December 1966, Air Station Mobile was officially commissioned with the transfer of HU-16E aircraft from Air Station Biloxi and the establishment of the fixed-wing and rotary-wing pilot training units.

The Air Station had a Training Division and a SAR Division. The SAR Division provided fixed-wing support and was under the operational control of the Eight Coast Guard District for all non-training missions. The HU-16E aircraft were placed in a pool which supported both the SAR and Training Divisions. The primary mission of the Training Division was to transition newly designated aviators to the HU-16E and HH-52A respectively and then send them to their units as designated co-pilots. Additionally fixed wing aviators were transitioned to helicopters (HH-52A) and helicopter pilots were taught to fly fixed wing aircraft. (HU-16E). Instructors were sent to operational units at varying times to conduct standardization flights for unit aviators.

There had been various programs for the introduction of Coast Guard Academy Cadets to Coast Guard aviation beginning in 1952. In 1958 a formal two week Cadet Aviation Training Program was initiated and took place at the Elizabeth City air station. Over a period of two months cadets entering their third year at the academy received class room instruction and a flight experience. In 1967 the program was transferred to the Aviation Training Center at Mobile.

During the summer months the HU-16E training section conducted the Cadet Aviation Training Program for USCG Academy Cadets.

In 1967 the HH-3F began entering the Coast Guard inventory and a HH-3F training section was established at Mobile. A year later an Icebreaker Support Section was established. Expanded messing facilities and a Barracks/BOQ complex was constructed. In July 1969 Air Station Mobile was renamed the United States Coast Guard Aviation Training Center and was designated a headquarters unit. This placed the training center under the direct control of the Commandant, a move necessary to facilitate and coordinate the movement of several hundred pilots in and out of Mobile each year.

<p>Note: Further and more complete information on the Icebreaker Support Section is located under “1969 – Icebreaker Support Section (IBSEC) established at Aviation and Support Center Mobile.” The IBSEC evolved into the Polar Operations Division (POPDIV).</p>

A study of Coast Guard aviator training requirements was also commenced in 1969. The study included a detailed analysis of costs and procedures. It was determined that a revised training program taking advantage of new concepts and technology could increase training effectiveness while simultaneously reducing costs. This was the starting point. It led to the first full motion simulators in the country and revolutionized Coast Guard flight training. The Coast Guard became the first military service to authorize instrument ratings strictly on simulator time.

Note: Further and more complete information on the simulator program is located under “1972 – Simulator Training Program Established at the Coast Guard Aviation Training Center”

At present the unit is named the Aviation Training Center, which better reflects its present functions. The unit provides qualified aircrews and standardization for HU-25, HH-65, and HH-60 operations and additionally provides standardization training and certification for Coast Guard ship/helicopter operations. The unit maintains an operational commitment to provide aviation support for Coast Guard Eighth District search and rescue, law enforcement, marine safety, homeland security, and logistics missions. This is accomplished with an around-the-clock ready HU-25 and other available aviation assets.

With well over 400 active duty military, civilian and contract personnel, and a payroll of over 17 million dollars, the Aviation Training Center is one of the larger air units in the Coast Guard and is one of the largest non-industrial employers in the Mobile area.

1967 – Coast Guard – Air Force pilot exchange program initiated. The Coast Guard aviators served with the Air Force Combat Air Rescue and Recovery Squadrons in Vietnam:

The Joint Chiefs of Staff ordered that search and rescue forces sent into Southeast Asia in May of 1964. The primary responsibility was given to the U.S. Air Force.

When the first units of the Air Rescue Service arrived with the short range HH43B helicopters they were not prepared for the unique challenges of combat aircrew recovery in the jungles and mountains of Vietnam and Laos. This deficiency was directly attributable to the draw-down of forces which took place in the late 1950's. The concept, during this period was one of massive nuclear retaliation. Consequently the Air Force committed itself to a peacetime Search and Rescue capability. Helicopters were assigned to individual Air Force bases founded on a study that determined that almost all accidents occurred within a 75-mile radius of the base of operations. Each base had a local base rescue detachment consisting of two or sometimes three helicopters. By the end of 1960, the Air Rescue Service (ARS) consisted of three squadrons and 1,450 personnel.

The Air Rescue Service struggled to catch up. In June of 1965, four-engine WW II-era transport HC-54s assumed interim duties as the rescue control aircraft. They were later replaced by HC-130's. In August 1965, A-1 Skyraiders began escorting rescue helicopters. In October the first of the HH-3E helicopters arrived. These aircraft had a good rescue hoist, drop tanks that increased the range, armament, and the more powerful T-58-5 engine. Of significant importance, was the titanium armor added to the HH-3E to protect the crew and critical helicopter components.



HH-3E Helicopter painted in Jolly green detail

On 8 January 1966 the Air Rescue Service became the Aerospace Rescue and Recovery Service (ARRS), and the 3rd Aerospace Rescue and Recovery Group (ARRG) took charge of all rescue operations in the Vietnam geographical area. Improved tactics were instituted and better equipment came into being. In-flight refueling of the HH-3Es, utilizing HC-130Ps as refuelers, became operational in June of 1967. However, due to the demonstrated ambivalence toward the helicopter, the Air Force requirement for the HH-3E had not been scheduled into the production line. As a result, the needed number of aircraft were not obtained until the first quarter of 1968. The HU-16s, replaced by the HH-3Es, were phased out during the fall of 1967.

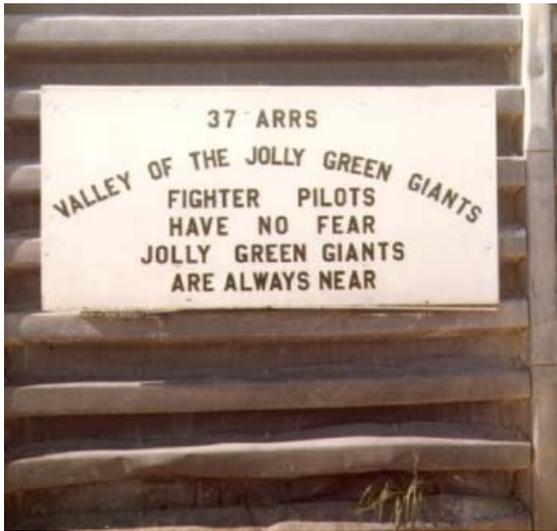
Things improved but the rapid increase in rescue requirements generated by direct involvement of US forces created an acute shortage of experienced HU-16 and helicopter pilots. The Air Force approached the Coast Guard for supplemental help at the beginning of 1966. An aviator reciprocal exchange program was suggested. It was not until March 1967 that the Coast Guard signed off on an implementing Memorandum of Agreement.

Orders were cut for the initial group of Coast Guard aviators under the Coast Guard – Air Force Aviator Exchange Program in July of 1967. From the eighty plus volunteers two fixed wing and three helicopter aviators were selected. The fixed wing aviators, both HU-16E qualified, were Lt. Thomas F. Frischmann and Lt. James Casey Quinn. Because the HU-16E was being phased out, both received orders to attend the Advanced Flying Course for the C-130 aircraft. This

completed, they received orders to report to the 31st ARRS, Clark AFB, Republic of the Philippines. Lt. Frischmann remained there. Lt. Quinn transferred to the 39th ARRS at Tuy Hoa, South Vietnam. The helicopter pilots selected were LCDR. Lonnie L. Mixon, Lt. Lance A. Eagan, and Lt. Jack C. Rittichier. They were transitioned to the HH-3E helicopter and assigned to the 37th ARRS at DaNang for combat rescue duty arriving on April 3, 1968. In preparing for this assignment they attended the Air Force Survival School at Fairchild AFB, Washington. This was followed by training in the HH-3E twin engine amphibious helicopter at Sheppard AFB, Texas. They then received advanced combat crew training was commenced in January at Eglin AFB, Florida. This was followed by high altitude helicopter flying in the mountains near Francis Warren AFB, Wyoming and jungle survival training at Clark AFB in the Philippines. They arrived in DaNang on April 3, 1968. Lt. Richard V. Butchka, Lt. James M. Loomis, and Ltjg. Robert T. Ritchie followed in April 1969. LCDR. Joseph L. Crowe, and Lt. Roderick Martin III arrived in 1971 and Lt. Jack K. Stice, and Lt. Robert E. Long followed in 1972. All of these aviators were helicopter qualified and were assigned to the 37th ARRS at DaNang.

These Coast Guard aviators made major contributions. The Air Rescue Forces, know as the *Jolly Green Giants*, consisted of only two squadrons. The 40th was initially at Udorn Thailand and later moved to NKP. The 37th was at DaNang. The 37th ARRS initially had 14 HH-3Es assigned. The squadron was authorized 21 each pilots and copilots but rarely would have more than 70 to 80 percent of that number on board. Only 25 percent of replacement pilots were qualified as Aircraft Commander. Experienced helicopter pilots had been a problem since shortly after initial deployment. The situation was further impacted with the formation of the 20th Helicopter Squadron activated in October 1965 and the 21st Helicopter Squadron formed in 1967. These squadrons, part of the 14th Air Commando Wing, operated out of NKP and performed counter insurgency missions and mission support in the CIA war in Laos. This “Top Secret” operation, called *Pony Express*, further depleted the supply of experienced helicopter pilots available to the ARRS. ARRS requirements were met by transitioning fixed-wing pilots to helicopter operations. These pilots arrived in Southeast Asia directly from initial helicopter training.

The Coast Guard aviators, well experienced helicopter pilots, arrived fully qualified. Though often junior in rank, the Coast Guard officers found themselves flying with a Major or Lieutenant Colonel as a copilot, but the rank disparity never interfered with the mission. Additionally, because of their experience, they were designated Instructor Pilots and were used extensively to train newly arriving pilots. LCDR. Mixon was cited for developing new improved water recovery tactics and medical evacuations from surface vessels. Shipboard operations was and would remain a Coastie operation. Lieutenant Colonel Charles R. Klinkert, USAF, the 37th ARRS Commander in October 1968 said “The Coast Guard Aviators have been a terrific assist to the Air Force. Very few of us had any experience in this helicopter. These gentlemen came in here and helped us become real effective in this type of mission. I can’t say enough about them.” There were a series of commendations from the Air Force to the Commandant of the Coast Guard praising these men not only for their aeronautical skill but also the courage and valor they displayed in combat.



Col. Klinkerts statement on effectiveness was correct. The *Jolly Greens* became the best at what they did. A number started with little experience but of necessity they learned fast and they learned well. No one can question their courage and dedication to the mission. A number of the pilots flew on second and third combat tours and the enlisted crews were almost all multi-tour vets by 1972. Col. Frank Buzze who flew F-100s in the war wrote the following; “They were called *Jolly Greens* with near reverence by US combat pilots. Jet pilots are a pretty individualistic lot, and will argue about almost anything but a sure way to start something is for someone to bad-mouth the *Jollys*. No one did.” The Coast Guard aviators were fiercely proud to be part of the *Jolly Greens*. The

Air Force treated them as their own. They were called “Coasties.” The term was one of respect. Major General Don Shepard, a *Misty* pilot during the war stated that the *Jollys* were the bravest of the brave.

Where did these men get the courage to go out almost daily for a year knowing that hostile forces were waiting to kill them each time they went? Nixon did not know, other than to observe that some found strength in religion, some found it in drink, and others in themselves. Only those who willfully place themselves in harms way and experience the deep innermost feelings which come from saving another’s life can truly understand. Fear was present – it did not go away, but a brave man can control it and even use it to his advantage. Without fear there is no courage. Butchka said each time he got ready to go his mouth felt dry and he found speaking was an effort, but once into the mission, this would disappear. The *Jolly Greens* were determined to make the save. The “Bad Guys” were determined not to let it happen .

The Air Rescue forces in Southeast Asia didn’t get all of the downed airmen but no one can say they didn’t try. They did get 3.883 and provided the world with thousands of examples of unselfish humanity. A report prepared by the Air Force Inspection and Safety Center, summarizing helicopter use in combat rescues, noted that during the Vietnam War, between 1965 and 1972, helicopters came under significant hostile fire in 645 opposed combat rescue operations involving downed aircraft. Crews were rescued in six hundred, or 93 percent, of these cases. This was not accomplished without cost. The 37th ARRS lost 28 men including Lt. Jack C. Rittichier USCG.

The Coast Guard aviators who served on the rescue team were highly praised by many. They stated that their exceptional proficiency was a product of their motivation to save lives, rather than individual brilliance. They no doubt downplayed themselves to avoid sounding boastful, but the commendations and awards presented to them proved not only their incentive, but most

certainly their flying skills and bravery as well. This group of men were awarded 4 Silver Stars, 15 DFC's, and 86 Air Medals

Their numbers were not large -- Their contribution was. They were all volunteers who regularly put their lives on the line to save fellow airmen who were in peril of death or capture. The focus was on duty, honor, country, and Coast Guard. Their mission was noble. They were much more than participants -- they were heroes. Their performance brought honor upon themselves, Coast Guard Aviation and the United States Coast Guard. History should ever reflect their honorable actions.

Note: The complete story, titled *Coast Guard Aviation in Vietnam – Combat Rescue and Recovery*, detailing the exploits of these men, is available from the Ancient Order of the Pterodactyls.

1967 - United States Coast Guard transferred to the Department of Transportation:



transportation safety.

In his 1966 State of The Union Message, President Lyndon B. Johnson announced his intention to seek legislation creating a cabinet-level department that would oversee all federal transportation-related activities. The Coast Guard was to be part of this department. This was strongly opposed by Secretary of the Treasury Henry H. Fowler. The opposition was duly noted but the Secretary was informed that if the Coast Guard remained in the Treasury Department it would lose all functions related to

transportation safety. The Commandant, Admiral Edwin J. Roland, recognized that opposition to the transfer of the Coast Guard to the new department would likely bring about the break-up of the Coast Guard leaving the remnant as a latter day Revenue-Cutter Service. He decided not to oppose the transfer seeking only to assure that the Coast Guard would retain its identity as a military service under the new Department of Transportation (DOT). A group of officers, under the direction of Rear Admiral Mark A. Whalen attended congressional committee hearings and were appointed to the Task Force on the Department of Transportation. Rear Admiral Whalen urged that support be sought from the Department of Defense and the Navy Department, both of which could attest to the value of the Coast Guard's participation in past military conflicts and most recently in Vietnam. Key senators and congressmen were kept fully informed and timely information releases were made to those sections of the civilian population where support laid. Although the actual transfer of the Coast Guard from the Treasury Department to the Department of Transportation took place under his successor, Admiral Roland deserves much of the credit for the ease with which the transition was made.

The transfer, however, slowed down the implementation of the Aviation Plan as well as Coast Guard wide replacement and upgrade of assets. The Coast Guard attempted to educate the new department on the validity of its roles and missions as well as the interdependence and cross utilization of assets which allowed the Coast Guard to perform its' missions so well. Unfortunately, the objectives of the Coast Guard and DOT never coalesced. The primary emphasis of DOT was regulatory oversight of road, rail and air transportation programs, industries and trust funds. The operational qualities and requirements of the Coast Guard were not fully appreciated and Transportation Secretaries were seldom willing or able to expend political capital on the Coast Guard's behalf. A little over a decade after transfer the Coast Guard would face a concerted effort from within the Department to de-militarize and privatize it while turning a good number of its functions over to other agencies or commercial concerns. In the early 1980s the Coast Guard was engaged in fighting for its very existence.

In 1967, the year the Coast Guard became part of DOT, it had an active duty strength of about 35,000 personnel. At the turn of the century the Coast Guard still had an active duty strength of about 35,000. In the intervening years however, significant events occurred that increased both the complexity and scope of Coast Guard missions. The Magnussen-Stevens Fisheries Act of 1976 provided the United States with a 200 mile Economic Exclusion Zone and assigned the Coast Guard law enforcement responsibilities for it. Counter Narcotic operations took a dramatic jump and by 1998 consumed 17% of the Coast Guard's operating budget. Migrant Interdiction increased dramatically with the large Cuban exodus of 1980 which turned into a large scale search and rescue operation. Migrant flows are now countered from multiple directions and countries. The grounding of the tanker EXXON Valdez in Alaska resulted in a flood of oil pollution laws and the bulk of regulatory development and enforcement fell upon the Coast Guard. In a series of speeches and congressional testimony given by ADM James W Loy, Commandant of the Coast Guard, during 1999 the seriousness of the Coast Guard's predicament was addressed. ADM Loy ticked off alarming indicators that the Coast Guard wasn't always ready anymore. Adjusted for inflation the Coast Guard budget actually decreased by 30 percent between 1992 and 1998 and by 2000 it had been forced to cut scheduled operations by 10 percent.

On March 1, 2003 the Coast Guard became part of the newly created Department of Homeland Security. Initial indications are that it is a much better fit and will be advantageous to the Coast Guard and the public it serves. Time will tell.

1967 – The now familiar Coast Guard Red Stripe Identification Symbol was adopted and was incorporated into the aircraft paint scheme:



In the early '60s, America's visual image had been neglected both inside as well as outside the U.S. Since image building played an important role in the recent election of President John F. Kennedy, the industrial design firm of Raymond Loewy/William Snaith, Inc. was hired to redesign the exterior and interior of the presidential plane. Kennedy was so pleased with the new design that he approved their proposal for improving the world-wide visual identification of the U.S. government.

In 1964, the firm recommended that the Coast Guard adopt a symbol or mark that would be easily distinguished from other government agencies and easily applied to ships, boats, aircraft, stations, vehicles, signs and printed forms. Their design was a wide red bar to the right of a narrow blue bar, both canted at 64 degrees. Centered on the red bar was the Coast Guard emblem. Studies were done with experimental markings for their impact on the public, as well as their long-run compatibility with the Coast Guard's mission and traditions. The reaction was overwhelmingly favorable. Three years later, on April 6, 1967, the now famous slash appeared throughout the Coast Guard.

In the history of U.S. Coast Guard aviation beginning with World War I, aircraft appeared in varying paint schemes and did not become uniform until after World War II. Until 1936, Navy colors were used, with the vertical red, white and blue stripes on the rudder. Contemporary Navy dark blue hull and yellow wing may be seen in illustrations of the Coast Guard OL-5, UO-4, RD, RD-1, RD-2, O-38-C, and PJ amphibians. In 1936, to provide a more distinctive color scheme, the airplane color was changed to aluminum, with yellow upper wing and tail surfaces and with red hull and white rudder stripes topped by a blue field. Some aircraft in service at that time were repainted. This color scheme is shown in illustrations of the OO-1, NT-2, RD-4, R3Q-1, TR-1, J2W-1.

When the Coast Guard was transferred to the Navy in 1941 for the duration of World War II, the yellow tail band appeared on planes which were assigned to air-sea rescue. Later, Navy colors were applied. Gray and blue gray were commonly used and some aircraft even appeared in a species of camouflage.

In December 1952, the color schemes became basically aluminum with chrome yellow trim for high visibility. Helicopters were painted an over-all

yellow color scheme, with varicolored tips on rotating aerodynamic surfaces. This was to enhance visibility to personnel working around helicopters on the ground, and helped track the main rotor blades. These schemes may be seen in illustrations of the PBY, PBM-5, Marlin P5M-1G, P5M-2G, and the HO3S-1G helicopter.

In 1958, Coast Guard aeronautical engineers began experimenting with a new easy-visibility paint scheme. Cornell University assisted in the research and suggestions were obtained from other interested observers. The idea was to paint aircraft conspicuously as a preventative to mid-air collisions, which was the concern of the whole aviation industry, military services, and a jittery public.

The most promising scheme was a fluorescent blaze orange outlined in black appearing on the nose of the plane, in a band around the fuselage behind the wings, and on the tail, on a basic field of solar heat reflecting white paint. These experimental paints proved many times more costly than the regularly used lacquers and enamels. They had to be stripped and replaced two or three times a year for maximum efficiency. Ultra-violet rays of the sun damaged the organic dyes so that the paints faded and lost power.

After further research easily strippable and more durable paints were developed and used on aircraft by 1960. . .The latest paint scheme that the Coast Guard began implementing in 1967 is basically similar to the former but incorporates the new diagonal Service identification blue bordered red stripe with the Coast Guard emblem superimposed on it.

1967 - HH-3F Helicopters Entered Coast Guard Service:



In November 1967 the US Coast Guard procured the first of the HH-3F Pelican Helicopters. This twin turbine, medium range, amphibious, all weather helicopter extended the Coast Guard offshore search and rescue capabilities. The HH-3F had a maximum speed of 142 knots with a normal cruise speed of 130 knots and a range: 650 NM. The Coast Guard purchased 40 HH-3F's. The last one was delivered in 1973

The HH-3F was manufactured by Sikorsky Aircraft, Division of United Aircraft Corporation, Stratford, Connecticut. The HH-3F was equipped with a single main rotor, twin engines rated at 1500 SHP each, a fully retractable tricycle landing gear, amphibious capabilities, and a hydraulically operated aft ramp that could be opened in flight, on the ground, or on water. The HH3F was additionally well suited for marine environmental protection, logistic and reconnaissance support, enforcement of laws and treaties, defense readiness and drug interdiction.

Normal crew included pilot and co-pilot seated side-by-side in the cockpit with the pilot on the right side. To the rear of the cockpit is the cabin. Access between the cockpit and the cabin could be used in flight. A folding jump seat was provided in the cockpit entry. A sliding cargo door is located on the right side of the forward end of the cabin. An eight-foot ramp was located at the rear of the cabin. The cabin accommodated two crew-men and six passengers; more in a rescue situation. Two large windows located in the forward cabin were used as search stations.

Two electronics racks were located in the cabin, one immediately aft of the copilot and one in the aft portion of the cabin. A folding type navigator's table was mounted on the electronics rack aft of the copilot and forward of the left crewman's seat. Structural provisions existed for 14 additional passenger seats and 15 USAF pole type litters. The cabin was 6'6" wide, 6' height, and 26'2 1/2 "long. The cabin was equipped with tie-down rings for transportation of cargo. A 600-pound capacity hydraulic rescue hoist with approximately 240 feet of useable cable was suspended on a fixed truss over the cargo door.



Two gas turbine engines were mounted side by side in the engine compartment which was located above the forward portion of the cabin. The engine drive shafts extended aft into the main gear box which was located in the transmission compartment. The main rotor assembly, to which the five rotor blades were attached, is splined to the main gear box drive shaft. The APU located aft of the main gear box is capable of driving the main gear box accessory section. The APU is used for engine starting and checkout of systems. A removable deflector was installed to reduce the possibility of foreign object damage to the engines.

During 1989 the US Coast Guard acquired five HH-3E helicopters from the US Air Force to supplement the HH-3F fleet and converted them to the Coast Guard HH-3F configuration.

Manufacturer	Sikorsky	Engines	G.E. T58-G.E.-5
Designation	HH-3F	Take-off power	2 X 1500 shp
Type	All-weather helicopter	Height	18 ft 1 in
Range	300 nautical miles	Length	57 ft 3 in
Cruise	130 knots	Rotor Diameter	62 ft
Gross Weight	22,050 lbs	Blade Area	445 sq ft
Hover Ceiling	6200 ft.	Crew	4

1969 - Icebreaker Support Section (IBSEC) established at Aviation and Support Center Mobile:



The Coast Guard's first ship-helicopter operations were on icebreakers. In December 1946, the CGC NORTHWIND participated in the U.S. Navy's Operation High Jump, the largest Antarctic expedition ever. NORTHWIND carried a Grumman J2F-6 "Duck" airplane and a single Sikorsky HNS-1 helicopter. The aircraft's job was ice reconnaissance: to fly ahead of the ship and identify ice leads that would allow safest passage. The HNS helicopter was much easier and faster to launch and recover than the Duck, and soon became an invaluable asset. NORTHWIND'S Captain reported, "The helicopter was the best piece of equipment ever carried on ice vessels."

The NORTHWIND was one of four ice breakers designated the "Wind Class." The first, the WESTWIND was launched in 1936. The EASTWIND, NORTHWIND, and SOUTHWIND, followed and were built for the Coast Guard. Three additional icebreakers in this class were built for the Navy. During World War II, the WESTWIND, and SOUTHWIND were lend-leased to the USSR. After the war the Navy and the Coast Guard shared polar icebreaking operations in support of arctic operations. The Coast Guard icebreakers were under Navy control. The Navy provided pilots and helicopter support utilizing a wide variety of helicopter types. After 1946 the NORTHWIND assumed the primary duty of the Alaska Patrol. The Mackinaw, similar to the Wind Class but not part of it was designed and built to operate on the Great Lakes and continues to do so. The Helicopter support on these two vessels was provided by the Coast Guard.

In 1965 the Navy offered to turn all icebreakers over to the Coast Guard with the stipulation that Coast Guard provide all helicopter support. At the time there was a question of HH-52 compatibility for polar operations. Two HH-52's, the Coast Guards primary helicopter at the time, were placed aboard the EASTWIND on it's 1965 Antarctic expedition to evaluate the feasibility of using them. The aircraft proved capable but logistics and support had to be addressed A second deployment was made during Antarctic operations in 1966-67 to determine

the support necessary to sustain a 2-helicopter detachment over a six month shipboard deployment. The Navy icebreakers were transferred to the Coast Guard in 1967.

With the success of the evaluation deployments the Coast guard purchased HH-52A aircraft for this purpose, and provided for personnel and support equipment. Since the icebreaker fleet was home ported in four different locations it was decided to form a helicopter support unit at a central location. The helicopter Icebreaker Support Section (IBSEC) was established at Air Station Mobile in 1969. The section had thirty officers, ninety-one enlisted personnel, and fourteen HH-52A helicopters. Pilots and aircrew trained for Cold Weather Survival, Mountain and Rough Terrain



Operations, Helicopter External Load Operations, and Shipboard-Helicopter Operations, including flight, maintenance, and deck handling. Detachments were formed with two helicopters, four pilots, and ten enlisted aircrewmembers. A deployment Icebreaker Kit was created for each detachment, which included the necessary spare engines, transmissions, rotor blades, parts, and supplies to ensure a two-helicopter operations in the shipboard and isolated environment for periods in excess of six months.

After the initial deployments had returned work began on writing a handbook for future Detachments. When the first detachments deployed there were few rules to operate by other than the standard rules and regulations for fixed base helicopter operations and common sense. The Polar operations and ship movement required modifications to safely accomplish the mission. The Deployment Icebreaker Kit was reviewed. Items were added and unnecessary ones were removed. Survival gear was similarly reviewed. From this the IBSEC Manual was created. The IBSEC was later assigned the additional responsibility of training the entire deck equipped cutter fleet and the IBSEC Manual was adapted to a service wide publication, the Ship/Helicopter Operational Procedures Manual (CG-419).

The Section was renamed the Ship Helicopter Division (SHOPDIV) in 1973, when deployments also included law enforcement Patrols aboard high endurance cutters (WHECs). In 1977, the division returned its primary mission to icebreaker support and received the title, Polar Operations Division (POPDIV). The HH-52As were operated until 1989, when the HH-65A “Dolphin” helicopters replaced them.

During January of 2005 the Polar Operations Division was disestablished. The reason for the closure was primarily the result of a continuous effort to balance resources against expanding operational requirements. The timing of the decision was driven by an immediate need to flow HH-65 operational capacity into gaps created by the engine replacement project. During the

period 1966 to 2005, 1400 aviators completed 162 deployments safely conducting flight operations in the world's most extreme environment, making the difficult seem routine, and leaving a legacy of accomplishment and discovery that will remain an enduring highlight of Coast Guard aviation history.

Red and White Helos

By: CAPT Bob Watterson, CG Av 891

When a contracted Madison Avenue PR firm, in the early 60's, advised the CG to change its operating unit livery to white with a red, white & blue racing stripe, all boats, ships and aircraft were configured accordingly.

The Icebreaker Support Unit (IBSU) was established at CGAS Mobile in 1968 to provide helo support for our 7 arctic icebreakers. At the direction of the CO. the unit's name was immediately changed to the Icebreaker Support Section (IBSEC) and was comprised of 14 pearly white HH-52's, and the station's name was changed to the Aviation Training & Support Center Mobile (ATSC).

I took out IBSEC Detachment 4 with 2 white HH-52's (Red Devils), and embarked on CGC Staten Island which departed Seattle in June '69 for a planned 3 month deployment in the western Arctic.

When CGC Northwind broke down, Staten Island (white) was assigned to replace her as escort for the SS Tanker Manhattan (black) in company with the Canadian Icebreaker John A. McDonald (red) for the first commercial transit of the Northwest Passage. Det 4 eventually debarked Staten Island in New York in October '69.

Among the many post-deployment projects that we undertook, was the hosting of an inter-service Arctic Helicopter Operation Safety & Survival seminar here at Mobile. I was assigned to coordinate this seminar and one of the results was a recommendation to CGHQ to reconfigure the IBSEC helos in a red color scheme. As documentation for this recommendation, I provided an aerial photo showing the 1000 foot black Manhattan being trailed through the icepack by the red McDonald, with a gray exhaust cloud as tail end Charlie indicating the position of the white Staten Island. Of course, the white HH-52 (Red Devil 2), on final for landing, could not be seen at all! In an almost predictable response front EAE, after a few months of pontification, we were advised that the recommendation was disapproved, pending the completion of an in depth study of a "high conspicuity color scheme for all helos." In one of my more reasonable reactions to this response, I replied that, "in the interim, why not paint the IBSEC helos red, a color which doesn't exist in the Arctic environment and also was used by the Navy and Army and therefore of great assistance in locating my helo (young butt) in the event of a forced landing on the endless white of the icepack?" Much to my delight, about a year later, an all Red (Orange) HH-52 was delivered to IBSEC from ARSC! On its starboard side, behind the open door, was stenciled

“Approved by Sunkist!” The decision had been made that since the number of helos (14) assigned to IBSEC was significant, these could be treated specially.

Subsequent deployments, both aboard all cutters (WAGB, WHEC & WMEC) and while visiting other air stations, indicated that the airborne image of the red (orange) helos significantly enhanced their all around conspicuity. As the number of helos required for icebreaker deployment dropped with the decommissioning of all but 2 icebreakers, the general deployment for all shipboard operations increased and the decision to convert all HH-52’s to this color scheme was made. On the retirement of the HH-52 and its replacement by the HH-65 Dolphin, this color scheme has been implemented for all of our Short Range Recovery (SRR) helos.

As a footnote, immediately after our receipt of that first Red (Orange) helicopter, we recommended that, to improve our ability to locate an icebreaker in the icepack, consideration should be given to painting them red also! We used the same aerial photo to support this recommendation.



“So, now you know “the rest of the story!”

1969 - VC-11A executive transport entered service. The first turbojet aircraft in Coast Guard service:



The Coast Guard acquired a single Grumman Gulfstream II in February 1969 as a high speed executive transport for use by the Commandant and the Secretary of Transportation. A turbo-jet, purchased off-the-shelf, it was equipped with an Inertial Navigation System that allowed it to go any place in the world without outside input.. It was based out of Washington National Airport.

The Gulfstream II, design number G1159 was the successor to the highly successful G-159 Gulfstream I [VC-4A]. The G1159 design retained much of the G-159 fuselage and was also fitted with dual nose and main-wheels. New wings with 25 degrees of sweep and swept T-tail were designed.

The VC-4A was retained. A USCG Headquarters Memo, dated 20 December 1973, address the use of the VC-4A and the VC-11A.

"These aircraft are used to provide air transportation on a demand basis, to the Secretary [of Transportation] and members of his staff, the Commandant, U.S. Coast Guard and members of his staff and such other personnel as may be authorized by the Commandant. The VC-4A is normally used for all flights east of the Mississippi and the VC-11A is normally used only for flights west of the Mississippi or outside CONUS."

The VC-4A flew for an average of 800 hours per year and carried an average of 7.8 passengers per flight. The VC-11A, on the other hand, flew an average of 600 hours per year and carried an average of 6.5 passengers per flight.

Manufacturer	Grumman
Designation	VC-11A
Wingspan	68 ft 10 in
Length	79 ft 11 in
Height	71 ft 4 in
Engines	2 Rolls-Royce "Spey" Mk.511-8 turbofans 50.7 kn of thrust each

Gross weight	59,500 lbs
Fuel Capacity	3,450 gallons
Max. speed	947 km/h / 588 mph
Sea level climb	5,050 feet per minute
Service ceiling	43,000 ft
Range	2,930 Nautical miles
Crew	4
CG Tail number	USCG 01
Payload	12 passengers

1969 - Coast Guard Air Station Chicago established:



Commissioned in March 1969 by then-Commandant Willard J. Smith, Coast Guard Air Station Chicago, located on the Glenview Naval Air station, was the primary Search and Rescue unit for southern Lake Michigan, responsible for the waters from Milwaukee, Wisconsin to Muskegon, Michigan and south to Gary, Indiana. Originally the station was equipped with two HH-52 helicopters. These were later replaced by two HH-65A helicopters. The station had eleven aviators assigned and thirty-four crewmembers, and was on call twenty-four hours a day.

Air Station Chicago's geographic location brought occasional operational deployments as far south as St. Louis, Missouri, west to Minneapolis, and north to green Bay, Wisconsin, for such work as flood relief and short range navigation. The preponderance of SAR activity took place between April and November during the boating season. Aircraves were performed throughout the year but were more frequent during the winter because snow storms and Blizzards made ground transportation hazardous and sometimes impossible. Pollution patrols were conducted throughout the year.

On April 1, 1995, Air Station Chicago transitioned to Air Facility Glenview and fell under operational control of Air Station Traverse City. It was manned by Traverse City with one helicopter and two crews from April through mid November. With the impending closure of NAS Glenview, the facility ceased operations on November 15, 1996. On April 1, 1997, Air Facility Muskegon was established and was manned with one HH-65A from Traverse City. In May of 2000, Air Facility Waukegan was established, and Air Station Traverse City slowly transferred operations there. On September 30, 2001, Air Station Traverse City completely transferred Air Facility Muskegon to Air Station Detroit and took control of Air Facility Waukegan. This is still the operational situation today, with both Air Facilities operating from Memorial Day to Labor Day.

1969 - Coast Guard deploys a detachment to Greece to provide HU-16 pilot training for the Hellenic Air Force:

The situation in Cyprus had brought Greece and Turkey, both NATO members, to the threshold of war. In the spring of 1968, a military junta overthrew the elected government in Greece and established themselves in power. Tension between the Arabs and Israel was growing and would eventually lead to war. The United States was becoming heavily involved in Vietnam. The Soviets took advantage of the situation to enhance their presence in the Mediterranean area. Obscured by these events the growth of the “Piatl Eskadra”, the Soviet Navy 5th Fleet, went almost unnoticed. Their ships no longer relied solely on the friendly ports of Latakia in Syria and Alexandria in Egypt. On the east and west of the island of Crete, marginally outside the Greek territorial waters, two large anchorages for the Russian warships were established!

The problem was recognized as serious, demanding a solution. The first step was to strengthen the U.S 6th Fleet. The second, to adjust NATO planning to the new situation. Two NATO members, Turkey and Greece were designated to assume a major role in meeting the challenge. Turkey controlled the Marmora straits, through which the Soviet ships were passing as they came out of the Black Sea into the Mediterranean. In the event of a crisis, Turkey could prevent the ships from transiting the straits. Greece, near the territory of which the Soviet fleet anchorages lay, was assigned the surveillance of the Soviet fleet and, if necessary, to be able to attack them. Surface ships were available and operated from various naval surveillance centers. The problem was the submarine threat. It was recognized that the best way for detecting and fighting submarines, during this period, was from the air.

Greece had no suitable aircraft for this purpose and in order to meet the challenge new defense procurements had to be made. The solution, however, was not straight forward. Almost all the armament procurements until then were through NATO using U.S funds. Although the financial problem was resolved the political obstacles were quite another matter. The United States Congress, because of the military dictatorship in Greece, had demanded President Johnson initiate and enforce an arms embargo. Under this embargo, deliveries of F-5 fighters and discussions for the sale of C-130E transports had been cancelled. The solution to the problem came from a completely unexpected quarter. Leonid Ilich Brezniev!

In August 1968, the Soviet forces rolled into (then) Czechoslovakia in order to put an end to the so called "Prague Spring". The democratic freedoms of the Greek citizens became a secondary consideration within the U.S Administration and NATO. Primary danger came from Soviet aggression and it had to be tackled. With this in mind, the Greek embargo was circumvented.

At this time, the Kongelige Norske Luftforsvare or Royal Norwegian Air Force was in the process of changing its anti-submarine aircraft. Because of the Soviet nuclear submarine threat Norwegian ASW capabilities were in the process of being upgraded. The first P-3 Orion arrived in January of 1969. It was decided, that as NATO assets, the Norwegian aircraft that were being replaced could be transferred to Greece. The Greek authorities had no objection as it represented a break in the embargo.



Albatross 515289, named "Faethon" was modified for the Electronic Warfare role.

The aircraft in question were none other than the venerable Grumman Albatross. These were amphibians that had been constructed in 1951 and '52. Some of them had started life as Grumman SA-16A-GR and others as SA-16B-GR. All had been modified to SA-16B when delivered to the USAF where they served in a search and rescue role until 1960. They were modified for the ASW role and in 1961 and '62 were transferred to Norway.

Two Norwegian squadrons were equipped with the Albatrosses. The 330 Squadron flying from Sola near Stavanger, and 333 Squadron in Andøya in the north of Norway between Narvik and Tromsø. Their role was not limited to the ASW and SAR but to other rather unusual duties. These included medevac, postal service to remote areas, ice and polar bear observation. They were not high time aircraft and because of the events taking place in the Mediterranean it was decided to inspect, upgrade, and repair as necessary as expeditiously as possible. This was done

in Germany and the first of twelve HU-16 ASW aircraft arrived at the 112 Wing at Eleuis Air Base in February of 1969.

Training of the air and ground crews started immediately. Flying training was undertaken by personnel of the U.S Coast-Guard. During March 9 more aircraft arrived, while on August, 1 of the same year the 353 Naval co-operation Squadron was established. All Albatrosses came under this squadron.

By the end of 1969 the first part of training was completed and in the spring of 1970 operational training started. For the pilots and the ground crew it was undertaken by the U.S Coast Guard as noted above, while for the anti-submarine equipment operators the instructors were from the U.S. Navy. It was a new experience for the Hellenic Navy men who were occupying the seats of tactical co-coordinator, radio operator and anti-submarine equipment operator. The first was an officer and the other two warrant officers. The rest of the crew pilot, co-pilot and flight engineer were from the Hellenic Air Force.



Greek Air force HU-16C with ASW equipment installed

1969 - Simulator training program initiated at the Coast Guard Aviation Training Center:

In early 1969 the long range aviation plan reflected a need for modification in the way the Coast Guard conducting aircraft training. The Navy and the Air Force were diverging from the direction the Coast Guard was going and training was costing more while becoming less optimum. Headquarters authorized an initial budget of \$3000 and designated Commander Gilbert E. Brown to evaluate the effectiveness of simulation. Discussions were held with American,

Brannif, Delta, and United Airlines, Flight Safety International, Embry Riddle University, the US Air Force, the US Navy and Link Flight Simulation. A lot was learned including the fact that cost would be a problem. Through Link it was learned that HumRRO (George Washington University) was producing SFTS modules (Army Hueys) to a single computer. An appointment was obtained and they assisted Commander Brown as he put together an initial study determining Coast Guard needs. The concept was presented to Coast Guard Headquarters and \$330,000 was provided to do a study, present the findings, write the needed procurement specifications, develop the training syllabus and consult during implementation. A presentation was made in December 1969. It was enthusiastically received and the necessary funds to build a simulator for both the HH-52A and the HH-3F were authorized. A Variable Cockpit Training System (VCTS) was subsequently built at the Aviation Training Center in Mobile.

Commander Brown transferred to the Aviation Training Center at Mobile in the summer of 1971 and was designated the VCTS Branch Chief. In 1973 he became Chief of the Training Division.

Procurement was advertised and the contract was awarded to Reflectone. During the next 18 months development and installation at Mobile took place. Design features of the simulator were evaluated on the basis of training value per dollar and what tasks could best be done in the simulator as determined by the study. The simulators use a single computer with a high speed operating system. Each cockpit was installed with six degrees of freedom. Training lost time to maintenance remained below one percent.

Simultaneously with simulator construction the training program was prepared. Several concepts were a radical departure from the traditional methods of military pilot training. Similar to airline procedures the focus was on training objectives which could be evaluated by observing tasks that a pilot might be expected to do in the operational environment including the operating of aircraft systems in all normal and emergency conditions. The student did not need to know all components of a system. If he could not control a component from the cockpit he/she would not need to know about it. Initially there were a good number who were less than enthusiastic about this. A second concept which departed from traditional training was that of proficiency based advancement. As soon as the student performed a particular operation at the desired level, he/she would move on to the next level of difficulty. The course length was allowed to vary with the learning rate of the individual.

Advanced training capabilities included performance play back, automated demonstrations of selected maneuvers, automated performance scoring and in cockpit control of all training and environmental conditions. The instructor position allows the simultaneous monitoring of student performance and the ability to operate the simulator controls. The instructor can intervene and freeze the simulator at any time. This allows a real time discussion and review of student performance as it takes place.

Annually, all Coast Guard helicopter pilots return to Mobile for a concentrated week of instrument and emergency procedure training. The Coast Guard was the first service to authorize instrument ratings, based solely simulator flight. The Transition Course qualifies rated helicopter pilots in a specific aircraft utilizing both simulator and aircraft. A Qualification Course prepares fixed-wing pilots for a rotary-wing designation. The Aviation Training Center (ATC) is the

standardization unit and as such edits flight handbooks, publishes newsletters, and other training material. Standardization visits are made to all air stations on a preset cycle.

The Training Center also conducts Coast Guard fixed-wing training and transition. All training for the C-130 aircraft is conducted using U.S. Air Force facilities. The HU-16 training was done solely in the aircraft. With the procurement of the HU-25, simulator training was provided.

As the HU-25 came on board and the HH-65 and the HH-60 replaced the HH-52 and the HH-3F the appropriate simulators were obtained and courses of instruction were developed.



- The HU-25 operational flight trainer (OFT) became operational in March 1985. A service life extension upgrade was done in 2003 and the flight management computer (CDU) was upgraded in 2006.
- The HH-65A OFT became operational in April 1985. Configuration upgrades from the “A” to “B” model was made and in 2007 the “C” model configuration upgrade was made.
- The HH-60J OFT became operational in April 1994. This simulator transferred a substantial portion of the training burden from the aircraft to the simulator. A service life extension upgrade took place in 2005.
- A HH-60J/ HH-65B reconfigurable cockpit procedures trainer (RCPT) was acquired in 2004

- The MH-60T cockpit procedures trainer (CPT) became operational in December 2007. The MH-60T supports initial pilot transition training from the HH-60J to the MH-60T configuration.
- CADS --the computer aided debrief station. In 2005, the Aviation Training Center started using the computer aided debriefs station for post-flight simulator performance evaluations. CADS significantly enhances an instructors ability to reinforce Crew Resource Management principles that serve to reduce the incident of human error related mishaps.

Initial USCG instructor training for the newly procured HC-144A "Ocean Sentry" was done by CASA in Spain. Pilot training will be done at ATC. The current plan is to build a HC-144 simulator building and level D simulator starting next year.

Commander Gilbert E. Brown Jr. USCG --- Coast Guard Aviator number 795

Commander Brown was the architect of the Coast Guard Flight Simulator Training Program. Over a four year period he sought funding, oversaw design, construction and implementation of the first full motion helicopter flight simulators in the country. The Flight simulators were fully integrated with pilot training at the Aviation Training Center, Mobile Alabama in 1972 and revolutionized Coast Guard flight training. The simulator integration reduced costs and significantly improved flight safety. The Coast Guard was the first service to authorize instrument ratings based strictly on simulator flight.

Commander Brown was inducted into the Coast Guard Aviation Hall of Fame.

1969 - Air station Cape May New Jersey re-established:



In 1926, a second Coast Guard Air Station was established at Cape May New Jersey to deter rum-runners.. The Air Station was decommissioned in 1938 due to a lack of funding. However, air patrol detachments were maintained at Cape May until 1941. During World War II, the Navy used Cape May again, this time for training pilots in aircraft carrier operations. The unique position of Cape May on the Atlantic provided excellent simulated conditions.

The Air station was re-commissioned 17 July 1969. It was the first Air station to utilize the "Group" concept wherein all operational units in a given area including

the Air Station would be under a single command. The Air Station was part of Coast Guard Group Cape May. The Group Commander was the Air Station Commanding Officer.

The area of responsibility extended from just north of Atlantic City, New Jersey southward to the Delaware and Maryland state line. The primary mission of the units assigned to the group was search and rescue and the enforcement of laws and treaties. Significant support was given to other Federal, State and local agencies in a multitude of ways.

The Air Station had fourteen aviators, one aviation warrant officer and twenty-five enlisted aviation personnel who operated and maintained three HH-52A helicopters. In 1968 the HH-52As were replaced with the HH-65A.



HH-52A helicopter on the left

HH65A helicopter on the right

During the summer months the group office established seasonal Search and Rescue Detachments (SARDET) at Fortescue Inlet, Townsend Inlet and Roosevelt Inlet. These were surface units fully supported by the helicopters from the Cape May Air Station.

In 1998, as a result of a Coast Guard aviation streamlining initiative to realign unit location with the capabilities of today's modern aircraft, Air Station Brooklyn, New York and Group-Air Station Cape May, New Jersey resources were combined at a newly constructed \$13 million facility at Atlantic City International Airport.

1970 - Air Station Cape Cod Massachusetts established:



Air Station Cape Cod crews fly both HH-60J "Jayhawk" helicopters and HU-25 "Falcon" jets to perform a variety of Coast Guard missions. The primary mission, Search and Rescue (SAR), involves the protection of life and property in the offshore areas from the Canadian border to Long Island, New York..

During the 1960s the Coast Guard employed the helicopter with a great deal of success as a rescue platform. With the development of the HH-52A, an amphibious helicopter, the need for a flying boat was lessened. Therefore, air stations having only water landing capabilities were being phased out. Air Station Salem, the predecessor to Air Station Cape Cod was such an air station

The Service began to search for a replacement facility, one that could grow with the anticipated new aircraft needed in the future. In 1968 an agreement was reached with the DOD to utilize the Otis Air Force Base on Cape Cod as the new home of a Coast Guard Air Station. Coast Guard Air Station Cape Cod was actually established on August 29, 1970 when the Coast Guard Air Station at Salem, MA and the Coast Guard Air Detachment at Quonset Point, RI were consolidated, providing a much greater degree of efficiency in the maintenance and operations of the Sikorsky HH-52A Sea Guard and the Grumman HU-16E Albatross. These two versatile amphibians served at the air station until they were replaced by longer-ranged aircraft in the early 1980's.

The medium range rescue Sikorsky HH-3F Pelican helicopter emerged at Air Station Cape Cod in 1976 and worked side-by-side with its counterpart the HH-52A, a short range rescue helicopter, until 1984 when the HH-3F assumed the duties of both aircraft. The HH-3F enabled the air station to reach farther off shore and its greater payload allowed it to carry more equipment and survivors. The HH-3F continued to protect the northeastern area until replaced by the Sikorsky HH-60J Jayhawk, a new medium range rescue helicopter, in 1991. The HU-16E Albatross was replaced when the Coast Guard entered the jet age. In March 1983 the last HU-16E in the Coast Guard inventory, HU-16E CGNR 7250 was officially retired at Air Station Cape Cod. It is proudly displayed at the air station. Its replacement, the HU-25A Guardian, a turbofan jet manufactured by the Falcon Jet Corporation, can fly 600 miles at 400 knots, orbit for 30 minutes, drop survival equipment while pinpointing the position of a distressed vessel. The Guardian has proven itself vital in drug interdiction as well as SAR with state-of-the-art radar and sensory packages on board. Cape Cod also has the only HU-25 aircraft in the Coast Guard equipped with Aireye, an airborne oil spill tracking and mapping system. The Aireye side-looking-airborne-radar (SLAR) excels not only at monitoring oil pollution, but in tracking icebergs in support of the International Ice Patrol.

The primary mission of the United States Coast Guard since its beginning has always been the protection and safety of life and property at sea. In the past two decades, air crews from Air Station Cape Cod have launched on over 6700 cases, saved nearly 2400 lives, and prevented the loss of \$340 million worth of property. Included in these statistics are cases which are respectfully referred to as "The Big One."

Probably the air station's most famous rescue occurred as recent as 1987. In March of that year, the Soviet Motor Vessel Komsomolets Kirgizzii sank 200 nautical miles south of the Massachusetts coast. Three of Air Station Cape Cod's helicopter rescued the 37-man crew from the Russian ship in 20 foot seas an winds gusting to 50 knots with no major injuries. For their extraordinary efforts, the air crews were invited to the White House by President Reagan to be honored in a Rose Garden ceremony. The event marked the first time a Coast Guard aircrew has been so honored.



1970 - In depth evaluation of hovercraft suitability for Coast Guard use conducted:

In the late 1960s significant interest was generated within the Coast Guard as to the feasibility of obtaining Air Cushion Vehicles (ACVs) to support a variety of Coast Guard missions. When three SK-5 ACVs, no longer required for the Naval mission in Vietnam, became available in late 1969 the Coast Guard elected to conduct an expanded ACV evaluation program. The hovercraft were overhauled in the summer of 1970. Two ACVs, the first arriving in October of 1970 were assigned to the Fort Point Coast Guard Station, San Francisco, California. The third was utilized for Artic Trials at Point Barrow Alaska.



The SK-5 was 38 feet 10 inches long with a beam of 23 feet 9 inches and was 15 feet 11 inches in height. The cabin supported a crew of three consisting of an Operator, Radar/Navigator, and a SAR crewman. It could comfortably carry six passengers or an appropriate amount of cargo. The craft had a maximum speed of 70 knots and a range of 300 nautical miles. It was powered by a General Electric LM100 Marine Gas Turbine rated at 1050 shaft

horsepower. A four-bladed, variable pitch propeller provided thrust and a seven-foot diameter centrifugal supplied the air cushion. Both fan and propeller were driven off the same engine.

The operational evaluation program at Fort Point commenced January 1, 1971. under the direction of Commander Thomas C. Lutton, USCG. During the next eight months, 1400 hours of formal operational evaluation was conducted to determine the ACVs capabilities in Search and Rescue, Law enforcement, Aids to Navigation, Marine Safety and Logistics. The ACV proved to be uniquely functional in many types of Search and Rescue Missions. The hovercraft, in company with aircraft and small surface vessels provided an efficient and highly effective response team. The ACV, utilized in law enforcement, provided a means of high speed pursuit, not available with small surface craft, making evasion extremely difficult. In Aids to Navigation missions, the ACV proved capable of performing all routine servicing operations in much less time than previously required. A larger ACV, however, would be required to lift or move an aid. Logistics was accomplished within a much reduced timeframe but was limited by size of the ACV.

In October of 1970, The Naval Ship Research and Development Center acting as an agent for the Department of Defense, requested the Coast Guard provide the operating and maintenance personnel for an ACV to be operated from the Naval Artic Research Laboratory, Point Barrow, Alaska. The ACV was used in a series of performance tests over the snow and ice on the lagoon east of Barrow. As summer progressed additional tests over

tundra and open water were conducted. On 1 August the craft departed Barrow to operate in conjunction with the Coast Guard Icebreaker Northwind. The ACV followed the pack line in a westerly direction and then turned north, engaging the major pack ice in route to the base camp. The hovercraft was used to transfer personnel and supplies between the base camp and the Northwind. It was also fitted with sounding equipment and an electric winch to conduct observation probes. The Consensus was that the ACV performed far better than anticipated and would be of significant use but could not replace the shipboard helicopters.

On completion of the Artic trials the ACV was transported to Travis City, Michigan and commenced winter operations out of the Saint Ignace Coast Guard Station. Although the northern operation pointed out several problem areas the potential of this type of vehicle in the Northern Great Lakes became obvious. Additional evaluation was later conducted in the

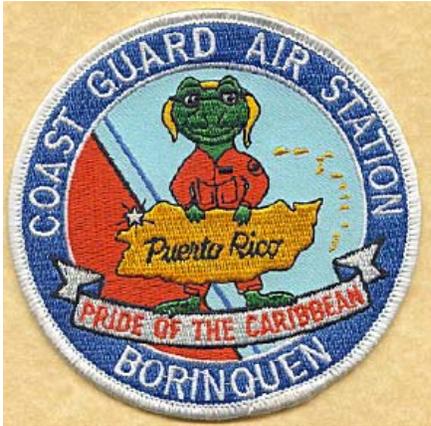


Chesapeake Bay Area. The San Francisco unit continued to operate during this period.

The evaluation report recognized that the ACV would not replace the utilization of boats and aircraft due to operational limitations the ACV had that was not present in the other craft. The report did, however, conclude that the air cushion vehicle could and should play a significant role in the Coast Guard. It went on to illustrate that used in concert with small boats and aircraft, the Coast Guard would be able to provide a more effective response capability at less cost.

The Coast Guard did not procure ACVs. The capability was not disputed but it was recognized that newer and more advanced and more expensive hovercraft would have to be procured. The Coast Guard was in the process of a large upgrade of its small craft and cutters as well as significant aircraft purchases and the development of the infrastructure required to operate them. The determining factor was the amount of money available and project priority. Recognizing that the ACV could not replace the aircraft or small boat the Coast Guard elected not to utilize ACVs.

1971 - The Air station Borinquen Puerto Rico was Established:



United States Coast Guard Air Station Borinquen is a direct descendant of Air Station San Juan, which was located on the Isla Grande Naval Station. In November 1971, the Air Station relocated to its present location at what was then Ramey Air Force Base in Aguadilla, and became known as Air Station Puerto Rico. Two years later the Air Force discontinued its operation at Ramey turning the facilities over to the Commonwealth of Puerto Rico and the United States Navy. The Coast Guard assumed the host role in July of 1976 when the Navy vacated the station. This alternative was chosen by the Commandant of the Coast Guard over three other options: discontinuance of air operations in

Puerto Rico, building at Roosevelt Roads, or building at San Juan Airport. It was then that this unit was designated Coast Guard Air Station Borinquen. The name is derived from the Taino Indian name for the island of Puerto Rico.

The Coast Guard has rehabilitated an additional 70,000 square feet of apron at its facility. A further 176,000 square feet of apron is also available on the north side of the Airport adjacent to the runway. A 194,150 square yard apron south of the runway, known as the "Charlie Area" exists, but requires major rehabilitation to reactivate. The "old B-52 apron" of 184,000 square yards is in good condition.

The Air Station originally utilized three HU-16 Albatross aircraft and two HH-52A helicopters to carry out search and rescue missions. Three HH-3F helicopters replaced these aircraft in March of 1973. The need for a long range law enforcement reconnaissance aircraft resulted in the addition of three HU-25A Falcon jets to the Air Station's inventory in late 1983 and early 1984. In 1985, four new HH-65A short range rescue helicopters replaced the three HH-3Fs. The HU-25A Falcon Jets were replaced by the HC-103H Hercules in 1987. The Air Station currently operates three C-130s along with its complement of HH65As.

Air Station Borinquen consists of the hanger, the support buildings adjacent the hanger, and the housing area. The housing area presently has 225 units, a Coast Guard Club with adjoining swimming pool, La Plaza complex containing an exchange, mini-mart, and a preschool and daycare center. The Air Station has a complement of approximately 165 enlisted and 35 officers; 150 civilians are also employed on base. The rest of the base housing is occupied by various Army, Air Force, Navy, and Federal Agency personnel.



The Air Station operates within the San Juan SAR Sector, an area of over one million square miles. The primary mission, search and rescue, is but one facet of the multi-mission responsibility. Of special note was the unit's significant response to the devastation left by Hurricane Hugo. This was truly a "Team Effort". Other duties include support for aids to navigation, surveillance for illicit drug traffic, air interdiction of drug trafficking, patrolling of the 200 mile fisheries conservation zone, and marine environmental protection. The Air Station prosecutes approximately 300 Search and Rescue cases and flies approximately 450 law enforcement sorties per year.

1972 - The Coast Guard Uniform is changed:

Admiral Chester R. Bender became Commandant of the U.S. Coast Guard in 1970. He felt that the Coast Guard should create a distinctly different uniform from that of the Navy and solidify the fact that the Coast Guard was a separate organization. Admiral Bender also felt that the traditional bluejacket enlisted uniform was demeaning for older enlisted personnel and that it detracted from the authority of petty officers engaged in law enforcement duties. A board was established to consider the uniform change. Retaining the Navy uniform was not an option. The board proposed a uniform similar in style to the old Surfman's uniform. The distinctive color was suggested by the Army's Natick Research Laboratory as it was different from any other military or government service. The board recommended an enlisted uniform similar to that proposed for officers.

The Commandant circulated a questionnaire and photographs of the newly designed uniform throughout the service. The reaction by the enlisted personnel was very favorable but the proposed uniform was not popular with the majority of the officers. This was especially true in the aviation ranks as it spelled the end to the distinctive aviation greens and the leather jackets.



Current Coast Guard Uniforms

The Coast Guard Blue uniform was approved by the Secretary of Transportation John A. Volpe in 1972. It was several years in getting to the field and would be lamented by some for a considerable time afterward. The uniform became known as “Bender Blues.”

Uniforms of the U.S. Coast Guard

In 1915 the Revenue Service and the Life-Saving Service combined to form the U.S. Coast Guard. The new service soon had its distinctive uniform characteristics.

By the 1920s major changes were seen in Coast Guard uniforms. First was the adoption of the double-breasted service coat similar to that still worn by the U.S. Navy. This was worn without shoulder straps, and rank designations were on the lower sleeve, with the familiar shield device above the rank stripes. Enlisted men, below petty officer, adopted the Navy-style white duck hat, though the traditional Donald Duck flat cap remained standard. The vessel name on the hat ribbon was to read, for example: U.S.S. Manning, C.G.

Coast Guard aviation came in to being in 1916. Aviators of this period flew and worked in their uniforms. The Navy had established a uniform for aviators that was “much more practical around the grease and dirt of flying machines.” The Marine Corps uniforms were adapted to aviation. In keeping with Marine Corps custom, brown shoes were worn. Thus aviators became known as “Brown Shoes” and the surface Navy as “Black Shoes.” The working dress for aviators, all ranks above petty officer, was forest-green gabardine or serge for winter and khaki-colored cotton for summer. The jacket had three buttons, a rolling collar with notch lapel, and four outside pockets (the lower to be of the bellows style). The pockets had flaps and the back had a bellows pleat from the shoulder to the sewn in waist belt. Green shoulder boards with black rank and shield devices were worn with the winter uniform. The khaki shirt had a soft collar worn with a black tie. The aviator badge was a winged, fouled anchor with shield, worn on the left breast. A folding-type flying cap was also authorized, edged in black and gold silk for commissioned and chief warrant officers. In 1941, Chief petty Officers designated as Naval Aviation Pilots were also authorized to wear the aviation uniform.

In 1941, for the first time, Coast Guard uniforms became officially a modification of Navy regulations. The garments themselves were the same as Naval uniforms and included the khaki undress combination with sewn in belt. Both services used the "combination cap": the officer's peaked headgear with interchangeable covers to match khaki, white or winter uniforms. Only the distinguishing corps devices, buttons, shoulder marks, etc., were distinctively Coast Guard. The officer's cap device for the Coast Guard was the most obvious difference. It consisted of a large spread eagle with shield, with a single horizontal anchor held in the eagle's talons. The Naval device had, and still has, a smaller eagle over crossed anchors. Also, the Naval eagle was silver; the Coast Guard's, gold.

The Coast Guard uniform coat also continued to have the national shield placed above the sleeve rank stripes. Coast Guard gilt buttons centered their design on a perpendicular anchor, with a rope like inner-rim. The Naval button consisted of an eagle, facing Dexter over a horizontal anchor.

It should also be noted that the Coast Guard accompanied the Navy in the short-lived adoption

of a grey undress uniform. This uniform, which was a dark steel grey, cut in the khaki single breasted pattern, was to be a cost-cutting replacement for both the khaki and double-breasted navy blue (black) uniforms. As with the other uniforms, it was complete with a grey cover for the combination cap. It was adopted in 1943 and phased out in 1947, when it became obvious that the Navy was not interested in abandoning the double-breasted uniform.

The interchangeability with Navy uniforms continued until after the transfer of the Coast Guard to the Department of Transportation and the subsequent adoption of today's lighter blue, single-breasted uniform. The present enlisted uniform marked the first major change in enlisted men's uniforms in over a century. Today, the only uniforms still identical to the navy's are the officer's summer white service and full dress combinations.

1973 - Medium Range Search Aircraft evaluation conducted – This led to the procurement of the HU-25:



A HU-16 wing fatigue test completed in October of 1968 established a wing service life of 11,000 flight hours. It was realized that normal wear aggravated by operation in a salt laden environment and the steady amassing of flight hours would result in the elimination of the Coast

Guard HU-16E fleet of aircraft. During the wing test period, the Coast Guard began exploring replacement options for the HU-16. This resulted in a recommendation to procure a mixed fleet of Sikorsky HH-3F and Lockheed C-130s. As the HH-3F aircraft came on board it became apparent that the mix of aircraft was not a viable operational or financial alternative.

In July of 1971 a Coast Guard Aircraft Characteristics Board was convened to develop operational and performance requirements for Medium Range Search (MRS) aircraft as a replacement for the HU-16E. Concurrently, the Board determined fleet size and geographical distribution. In April of 1972 the Board recommended leasing one representative multi-engine aircraft for mission evaluation in each of the following classifications: turboprop, turbofan, and turbojet.

A Request for Proposal (RFP) resulted in the leasing of a Cessna Citation fanjet and an Israeli J 1123 Westwind turbojet. The RFP did not result in a timely response for a turboprop aircraft so the Coast Guard VC-4A was utilized. The operational evaluation of these aircraft focused on the suitability of each class of aircraft for the range of Coast Guard missions and on establishing a size (weight and volume) baseline for MRS specifications. The evaluation established the

viability of the turbofan for multi-mission applications. The turbofan also offered significant reliability when compared to reciprocating engine and turboprop aircraft. The Citation was found to be inadequate in size to perform the Coast Guard's multi-missions. The Westwind was also found to be lacking in size.



IAI Commodore Westwind 1123



Cessna Citation 500

The Aircraft Characteristics Board after reviewing the interim and final evaluation reports, and after re-examining the operational requirements determined the MRS aircraft would be powered by fanjet engines, weigh no less than 20,000 pounds with a minimum combined cockpit and cabin interior volume of 600 cubic feet, and have aerial delivery capability.

The three minimum size candidates identified as potential contenders under these requirements were: the Rockwell Sabre 75A, the French Dassault Falcon 20, and the British BH-125. The BH-125 was eliminated because the turbo jets that powered it would in low altitude loiter missions impose severe and unacceptable fuel consumption penalties. The Falcon 20 and the Sabre 75A had just completed a head-on FAA procurement competition. Rockwell's offer significantly under bid that of the Falcon Jet Corporation. The U.S. Military was already using the Saber 75 and rather than proceed with a competitive MRS procurement which would duplicate the FAA effort, the decision was made to proceed with the issuance of a Military Interservice Procurement Request to the U.S. Navy for the purchase of the Sabre 75A.



Rockwell Sabre 75



Falcon HU-25A

This decision drew sharp industry and congressional criticism. As a result the Coast Guard went out with a Request for Technical Proposals. It was lengthy and technical and detailed exactly what the Coast Guard felt was required rather than what was available. Rockwell International, VFW Fokker, Grumman American, Lockheed Marietta, and Falcon Jet Corporation responded. Grumman American withdrew, Rockwell declined to bid, and Falcon Jet Corporation was the low bidder. The award to Falcon Jet Corporation was approved and the HU-25A came into being.

1973 - Coast Guard deployed helicopters on surface vessels: Drug interdiction operations begin:

In response to a growing drug problem, Congress passed the Controlled Substance Act of 1970. It replaced more than 50 pieces of drug legislation and is the legal foundation for government anti-drug operations. It went into effect on May 1, 1971 and was enforced by the Bureau of Narcotics and Dangerous Drugs (BNDD) which operated within the Department of Justice. There were, however other agencies also responsible for enforcing drug laws and due to the lack of coordination and perceived lack of cooperation between the BNDD and the U.S. Customs Service President Nixon proposed a reorganization plan. The plan was passed by Congress in 1973, creating a single federal agency, the Drug Enforcement Administration (DEA) to consolidate and coordinate the government's drug control activities. Additionally an intelligence section was established.

Drugs were being smuggled in by air. Some of the aircraft were utilized for one way trips at small out-of-the-way airports. Drugs were also smuggled in by surface vessel. The type used was transitioning from recreational yachts and sailboats to the typical small rusty Caribbean freighter which would off load to small boats which would dash for shore. The previous policy had been to apprehend the smuggler as they delivered their illegal drugs. This was changed to a policy of interdiction of the drug-runner prior to reaching the shore. The Custom service had a fleet of confiscated aircraft and initially handled the air-interdiction but neither the former BNDD or the Customs Service had a navy. Although the U.S. Coast Guard had been transferred from the Treasury Department to the Department of Transportation it still retained the responsibility for maritime law enforcement. The Coast Guard had the maritime assets and its participation was requested

In the beginning there was very little hard intelligence. The Coast Guard operated by placing cutters on patrol in the obvious choke points in the transit from Columbia to the United States. Periodically an HU-16 was launched specifically to look for a 'Hot' vessel but most missions were surveillance covering coastal waters, the high seas and the island areas for caches and vessels that fit the profile



HH-52A helicopter landing on USCGC Decisive

In the summer of 1974 “Operation Buccaneer” took place. This was a joint surveillance and interdiction effort involving the Coast Guard, Customs Service, and the Drug Enforcement Agency. It was designed to blockade the Windward Passage between Cuba and Haiti, thereby denying drug smugglers their preferred route northward from Jamaica and Columbia to the Bahamas and then to the south east coast of Florida. Helicopters had deployed on the 210s previously but not to the extent that was about to take place. Operation Buccaneer yielded an ambitious quantum leap in force projection for the Coast Guard. Ships and aircraft from other districts augmented Seventh Coast Guard District resources. Fixed wing assets were in the air constantly and helicopters leap-frogged from ship to ship, providing highly reliable surveillance information in the excellent prevailing weather.

Experience gained from this operation was used with improve interdiction planning. The Coast Guard made a presentation on the how and what the Coast Guard could do. These efforts were integrated with efforts of the Customs service and the DEA. Methods of communication and operations were established and some joint night barrier patrols were conducted between the Bahamas and the U.S. coastline. The 82 footers were put on patrol and drug seizures increased substantially.

From these modest beginnings, the Coast Guard dramatically increased its involvement. Interdiction efforts moved from the mainland shoreline to “Choke-points” in the transit zone where ships smuggling marijuana had to pass through to reach the distribution points. From this *Steel Web* concept was developed. *Steel Web* is the Coast Guards multiyear campaign to position the requisite interdiction forces where they best counter the ever evolving narco-trafficking threats. The strategic concept is to deny drug smugglers access to maritime routes by a sequence of operations in which interdiction forces are concentrated in high threat areas of the Caribbean and eastern Pacific and significantly disrupt drug traffic. These operations are referred to as pulse operations and once completed an enhanced presence to deter and interdict subsequent smuggling is established and the interdiction forces are redeployed to other high threat areas.

Coast Guard aviation involvement continued to increase. Helicopters continued deploy on the ships and new Coast Guard jet aircraft were equipped with fighter-type interceptor radar and infrared sensors to locate, identify, and track suspected aircraft. The Coast guard increasingly took over the responsibility of air-interdiction.

The 7th District Command Center became the center of gravity for counter-drug efforts in the Southeastern United States and the Caribbean.

1974 - Air station North Bend Oregon established:



The Coast Guard Air Station North Bend was commissioned 28 September 1974, as part of Group North Bend, co-located on the North Bend, Oregon, Municipal Airport. The airport is a former Naval Auxiliary Air Station and is located on the shore of Coos Bay.

The original Group has grown since inception and now consists of the Air station, an Air Facility at Newport, the 110 foot Coast Guard Cutter Orcas, six Motor Lifeboat Stations with two additional search and rescue detachments, an Aids to Navigation Team with five lighthouses and 181 minor aids to navigation. The Group oversees all operations of Group North Bend units and supports them by providing administrative, supply, medical, engineering, and communications services. The area of responsibility extends from Depoe Bay Oregon southward to the California border. The Commanding Officer of the Group is also the Commanding Officer of the Air Station and many of the officers assigned to the Air station have additional duties in the Group.

The Air Station was commissioned to address the increase in the amount of Search and Rescue activity which took place on the Oregon coast in the late sixties and early seventies. Three HH-52 helicopter aircraft were assigned. The HH-52s were replaced by HH-65A dolphins by 1990 and five are presently assigned to address the increased activity. Search and Rescue remains the primary mission of the Air Station with an increase in law enforcement and environmental activities in recent years. The Air Station also frequently assists federal, state and county agencies by responding to calls for assistance with inland searches and medical evacuation of injured loggers.