

A Chronological History of Coast Guard Aviation

The Early Years

1915-1938)

Summary Overview

It could be said the Coast Guard's introduction to aviation took place in 1903 when the surfmen from the Kill Devil Hill Life Boat Station of the US Life saving Service provided the Wright Brothers with additional man power during the pre-launch activities of that epic flight. They helped transport the Wright biplane to its launch site. Surfman J.T. Daniels took the only photograph of the event. By act of Congress, the US Life Saving Service was merged with the Revenue Cutter Service to form the United States Coast Guard.

The Coast Guard came into being when President Woodrow Wilson signed into law the Act to Create the Coast Guard on 28 January 1915. Coast Guard Aviation owes its beginnings to Second Lieutenant Norman B. Hall, Third Lieutenant Elmer F. Stone and their commanding officer Captain B.M. Chiswell. All felt strongly that disabled vessels and derelicts could be located more quickly from an airplane than from a relatively slow moving vessel. They approached the Curtiss Flying School at Newport News Virginia, discussed their concept and made arrangements for a series of flights to evaluate the idea. The flights proved to be successful. Captain Chiswell set about selling headquarters on the idea and requested that consideration be given to sending Coast Guard Officers to Naval Flight School. Coast Guard Commandant E. P. Bertholf queried the US Navy Department concerning this possibility. The Navy agreed and on the first day of April 1916 Lieutenant Elmer Stone received orders for flight training. Lt Sudgen and others would follow. Lt. Norman B Hall was ordered to the Curtiss Aeroplane and Motor Company factory to study aircraft engineering.

The United States entered World War I on 6 April 1917 and the Coast Guard was transferred to the US Navy. An additional eight Coast Guardsmen had obtained their wings by this time and all participated. The expansion of Naval Aviation was rapid and the Coast Guard Officers having had previous sea duty were senior in rank. As a result they were assigned as Commanding Officers of major commands and naval air stations Lt. Sudgen became commanding officer of the Naval Air Station, Ille Tudy, France, LT. Eaton was commanding officer of the Chatham Naval Air Station. LT. Donohue was commanding officer NAS Sydney, Nova Scotia, LT Parker was commanding officer of NAS Key West and Lt. Coffin became commanding officer of the enlisted training school at Pensacola.

After the armistice the Coast Guard was returned to the Treasury Department and opportunities for aviation duties were extremely limited. In the unsettled times following the war Coast Guard

Aviation was all but lost. Then an event occurred which brought hope to all. Three Navy flying boats, NC-1, -3, and -4, took off on a flight across the Atlantic to Europe in May 1919 to demonstrate the reliability and usefulness of large flying boats. Lt. Elmer Stone had continued to work with the Navy after the war at the Navy's request. He was assigned as pilot of the NC-4; the only one of the three flying boats to successfully complete the journey. The successful crossing of the Atlantic by NC-4 had far reaching effects on the development of naval aviation. Interest in aviation was again renewed within the Coast Guard and the former US Navy Air Station at Morehead City, North Carolina was obtained for the establishment of an air station. It operated with 6 borrowed aircraft and proved successful in locating marine hazards and protecting life and property. The air station was forced to close after a year due to lack of funds.

The manufacture, sale or import of intoxicating beverages was forbidden by the Eighteenth Amendment to the Constitution after 16 January 1920. The Coast Guard found itself enforcing federal anti-smuggling law on an unprecedented scale. During the mid-1920's rum running became so flagrant that surface craft were unable to cope with it. Early in 1925 LCDR C.C. Von Paulsen, with the assistance of the Coast Guard Commandant, obtained the loan of a Navy aircraft for a year. An air station was set up on Ten Pound Island in Gloucester Harbor, Massachusetts. A schedule of daily patrols substantially reduced the rum running in that area. Impressed by the activity of the air station, Congress appropriated the funds for five aircraft. Three were placed at Ten Pound Island and two were placed at Cape May, New Jersey establishing a second aviation unit.

In 1928 an aviation section was established at Coast Guard Headquarters under the command of CDR. Norman Hall. It drew up specifications for a multi-mission aircraft which could fly hundreds of miles, land in open and frequently uninviting seas and carry out a rescue. These were the General Aviation PJ "flying lifeboats." Henry Morgenthau became Secretary of the Treasury in 1934. He was an aviation enthusiast and supported its expansion within the Coast Guard. In the mid 1930's RD-4 Dolphins were added, Grumman JF-2s were purchased and Hall PH-2 flying boats came on board in 1938. The marriage of aircraft and ship first took place during this period. The 327-foot cutters each embarked a Grumman JF-2 amphibian. In addition the Secretary obtained Public Works Administration funds and by the end of 1938 there were fifty aircraft, eight Air Stations and one Air Detachment.

Search and Rescue

The initial proposal for Coast Guard utilization of aircraft was to assist Coast Guard Cutters in searching for vessels in distress and locating derelicts and hazards to navigation in the open seas. World War I interrupted the development of this concept but in 1920 an air station was established at Morehead City, North Carolina, to evaluation purposes. The aircraft proved effective but the air station closed after a year of operation due to lack of funds. During 1926 two air stations, one at Ten Pound Island at Gloucester Massachusetts and one at Cape May, New Jersey, were established to search for and locate maritime smugglers of alcohol during the Prohibition period. The use of aircraft proved to be very effective for this purpose.

Aircraft also proved to be very effective in rendering assistance to those in distress in the bays, coastal regions and those areas adjacent to the sea. They were able patrol and search vast areas in

much less time than a surface vessel could. The fact that these aircraft could operate from the water contributed significantly to the saving of life. This capability to cover vast areas in a limited period of time was also utilized to warn people of impending storms and hurricanes. Evacuations for medical reasons became part of the mission and in the early 1930s, a series of aircraft, referred to as flying lifeboats, were developed with a capability of landing in the open sea. During the year 1938 there were 1,931 persons warned of impending danger; 335 vessels warned of impending danger; 266 persons in peril assisted; 125 medical cases, 10 of which were facilitated by landings in the open sea, were; 87 disabled vessels located; and 21 navigation obstructions located. Coast Guard aviation was in the beginning stages of what has become recognized today as its search and rescue mission.

Search and Rescue will be a continued part of the introductory narrative to each section of the Coast Guard Aviation History Timeline. It will trace the overall development and the expansion of the search and rescue mission. The individual exploits and amazing performance of Coast Guard aviators is a subject so vast that it is beyond the capabilities of this project to effectively present them. The Ancient Order of Pterodactyls, as part of its commitment to the preservation and promulgation of Coast Guard aviation history, has developed an ongoing electronic repository website which addresses this subject as well as others. You are encouraged to avail yourself of this information.

Historical Timeline of Events

The Early Years 1915-1938

1915	28 January	The United States Coast Guard Was Established:
1916	21 March	The Beginnings of Coast Guard Aviation:
1916	1 April	The Navy Offers Flight Training to the Coast Guard:
1917	7 April	Coast Guard Aviation in World War I:
1919	27 May	NC-4 Transatlantic Flight
1920	24 March	The First Coast Guard Air Station – Morehead City, NC
1926	20 June	The First Permanent Coast Guard Air Stations Established:
1929	13 June	Air Traffic Flight Following Established by USCG:
1932	1 June	The Flying Lifeboats:
1932	1 June	Coast Guard Air Station Miami Established:
1934	9 March	Coast Guard Commences Aerial Border Patrol Operations:
1934	27 October	Coast Guard Obtains Grumman J F-2 Ducks:
1934	5 December	Coast Guard Air Station Biloxi Established:
1935	15 February	Coast Guard Air Station Salem Established
1935	20 February	VIP Executive Transport Purchased
1935	1 March	Coast Guard Air Station St. Petersburg Established:
1935	1 June	Coast Guard Air Station Port Angeles Established:
1936	3 June	Coast Guard Cutters Designed To Carry Aircraft:
1936	October	Viking Flying Boat OO-1
1937	March	Coast Guard Air Patrol Station Charleston Established:
1937	April	Coast Guard Air Station San Diego Established:
1938	April	Coast Guard Purchases Hall PH-2/3 Flying Boat:
1938	23 April	Coast Guard Air Station Brooklyn Established:

1915 - The United States Coast Guard Was Established:



In 1911 President William H. Taft appointed a commission under the direction of Frederick A. Cleveland to recommend ways to increase the economy and efficiency of the government. A conclusion of the Cleveland Commission was that uni-functional government agencies were more efficient and economical than multifunctional ones. A portion of this report recommended that the duties and assets of the Revenue Cutter Service be apportioned among other government agencies and departments. The commission's report further recommended

combining the Lighthouse Service and the Life-Saving Service due to their similar protection function.

The Treasury, Navy, and Commerce and Labor departments were asked to comment on the report.

Secretary of Commerce and Labor Charles Nagel favored combining the Lighthouse Service and the Life-Saving Service and that it be placed under his control. He further stated that he would need some of the revenue cutters for aiding ships in distress off the American coasts. Secretary of the Navy George von L. Meyer said he was interested in the revenue cutters and enlisted personnel but stated that the chief functions of the Revenue Cutter Service could not be accomplished during the regular performance of Navy duties. The final responses came from Secretary of the Treasury Franklin MacVeagh and the Revenue Cutter Service's Captain Commandant Ellsworth Price Bertholf. Secretary MacVeagh's response was indignant. He pointed out the close and successful working relationship the Revenue Cutter Service and the Life-Saving Service had. He went on to question the validity of the alleged efficiencies put forth by the Commission and echoed the Navy's argument with reference to their inability to perform Rescue Cutter Service functions. Captain-Commandant Bertholf asserted that without the revenue cutters the Departments of Commerce and Labor, Agriculture, Interior, Justice, and Treasury would have to obtain their own maritime assets in order to meet certain parts of their responsibilities which would require additional expenditures for procurement and operation resulting in increased costs and a proliferation of forces afloat. He additionally pointed out that transfer of the cutters to the Navy would result in an increase in cost of operation due to the increase in crew and battery of naval vessels. President Taft was not convinced and forwarded the Cleveland Commission's final report to Congress with his recommendation that the legislators adopt the commissions findings. Secretary MacVeagh remained opposed and directed Sumner Kimball, head of the Life-Saving Service, and Captain-Commandant Bertholf of the Revenue Cutter Service to draft legislation that would join the Revenue Cutter Service with the Life-Saving Service

Revenue Cutter Service supporters within the federal government, the press, and the general public fought the move to eliminate the Service. The press reviewed the Service's record and reported cutter rescue activities in detail. Editorial comment was heavily in favor of the retention of the Revenue Cutter Service. Captain Commandant Bertholf was also very active in promoting Revenue Cutter Service accomplishments and capabilities. In 1912 the White Star liner Titanic, after hitting an iceberg, sank with a high loss of life. In response, the Navy conducted ice surveillance in May of that year utilizing two light cruisers. Bertholf prepared a memorandum stating that North Atlantic ice surveillance was markedly similar to the Bearing Sea Patrol that the Revenue Cutter Service presently performed. He stated that revenue cutters could perform the same duties in the North Atlantic much more economically than the large cruisers and that the Revenue Cutter Service should assume these duties. He cited a 1906 act of Congress as the authority. The Revenue Cutter Service conducted its first Ice Patrol in 1913 in exemplary fashion.

The Revenue Marine was established in 1790 to enforce the tariff and all other maritime laws and until 1798 was the only armed military service of the United States. During the War of 1812 the Revenue Marine Service and its cutters were placed under the command of the United States Navy. In 1832, secretary of the Treasury Louis McLane ordered in writing that revenue cutters were to conduct winter cruises to assist mariners in need. Congress made the practice an official part of regulations in 1837. The Revenue Marine Service again served under the Navy in the Mexican-American War of 1848. In 1861 the Revenue Cutter Harriet Lane fired the first shots of the American Civil War. The Revenue Marine was renamed the Revenue Cutter Service in 1862. The Revenue Cutter Service participated in the Spanish American War in 1898.

In 1848 Congress appropriated funds for the establishment of unmanned life saving stations along the New Jersey and Massachusetts coasts. Between 1848 and 1854 other stations were built and loosely managed. They were run with volunteer crews, much like a volunteer fire department. The Revenue Marine Service was charged with administering them and thus the initial relationship came into being. The Great Carolina Hurricane of 1854 highlighted the poor condition of the equipment, the poor training of the crews and the need for more stations. Additional funds were appropriated by Congress including funds to employ a full-time keeper at each station and two superintendents. In 1871 the system of stations was officially recognized as a service and Sumner Increase Kimball was appointed chief of the Treasury Departments Revenue Marine Division. Kimble convinced Congress to provide additional funds to operate the stations and to employ crews full-time. New stations were built and regulations and standards were established. In 1878 the network of life saving stations were formally organized as a separate agency of the Treasury Department and was named the Life-Saving Service.

Treasury Secretary MacVeagh and the Taft administration left office in March of 1913. The new Secretary, William G McAdoo, was thoroughly briefed and the Wilson administration strongly backed the Treasury Departments proposal to merge the Revenue Cutter Service and the Life-

Saving Service. It was sent to Congress in 1913 and introduced in the Senate to be considered by the committee on commerce. It was adopted without exception on 12 March 1914. However, in the press of activities generated by the incoming administration the Senate bill was not scheduled on the House Calendar. President Wilson was apprised of this and addressed a note to the House Democratic leader, as follows:

White House
Washington
December 19, 1914

Hon. Oscar W. Underwood
House of Representatives

Dear Mr. Underwood: I hope that you will not think I am unduly burdening you if I write to express my great interest in the bill which has been passed by the Senate and is pending in the House which provides for the consolidation of the Revenue-Cutter and Life-Saving Services. It is of the highest consequence for the efficiency of both services that this bill should pass, and I hope that some chink may be found for it even in the rush hours of the House Calendar.

With warmest regards,
Faithfully yours,
Woodrow Wilson s/s

The bill was worked into the House Calendar. Representative William C. Adamson of Georgia, an advocate for combining the two services, steered it through the House. He advocated passage of the bill principally on the grounds that the bill would (1) reorganize the two services on a logical basis and result in increased efficiency, (2) improve the status of the life-savers facilitating the recruitment of desirable men, and (3) create a naval reserve ... without additional cost to the Government ... immediately ready upon notice to operate under the Navy Department whenever the President directs. Recognizing that World War I was in the initial stages, Mr. Adamson further suggested to Congress that:

“While the question of national defense now more than ever before is brought into prominence, it is well to consider the advantages of a coast guard from a strictly military standpoint The very nature of the emergent duties in peacetime will make its members quick to action, resourceful, and disciplined, all of which, it must be admitted, are absolutely essential to success in modern sea fighting Simply by a stroke of a pen, the President can transfer this highly efficient corps of men, armed, trained, and disciplined, into the regular Naval Establishment at any time This asset of military preparedness must therefore not be overlooked when appraising the value of a coast guard to the Government.”



Captain-Commandant Ellsworth P. Bertholf; the first Commandant of the United States Coast Guard.

Mr. Adamson was highly effective. After a debate that centered more upon cutter officer and surfman pay and retirement benefits than conceptual issues the Act to Create the Coast Guard was approved on 20 January 1915 by a vote of 212 for and 79 against. The yes votes were spread evenly between both major parties. President Wilson signed it into law eight days later.

The name Coast Guard had its origin in European usage. The Spanish had attempted to prevent illegal trade with its New World colonies during the 1600 and 1700 hundreds by utilizing intercept vessels known as *guarda costa*. In 1822 the British Government had given the name “Coastguard” to an organization of coast watchers that reported smuggling activity and vessels in distress, and acted as a naval reserve. The term Coast Guard had been applied informally, from time to time, to the Rescue Cutter Service during the

late 1800s. Captain-Commandant Bertholf deemed this to be the logical name for the new service and it found ready acceptance with the public.

Captain-Commandant Bertholf, appointed for a second term, faced the delicate challenge of Combining the civilian Life-Saving Service and the military Revenue Cutter Service — organizations with vastly different cultures — into a single military service. Bertholf was absolutely convinced that the military character of the Revenue-Cutter Service had to prevail but large numbers of lifesavers did not wish to change status. As a result the two services were joined at the top but operated as separate entities until events accelerated the development of a fully integrated modern security force.

Note:

Congressman Adamson’s contributions both outside and within the Congress were of significant magnitude. He was referred to on numerous occasions as the “Father of the Coast Guard.” Mr. Adamson was presented an ornate silver loving cup with the following inscription:

“Presented to HON WILLIAM CHARLES ADAMSON, member of Congress from Georgia, by the OFFICERS of the UNITED STATES REVENUE CUTTER SERVICE as a slight token of friendship and of their admiration of his able and disinterested efforts in their behalf.”

Congressman Adamson was the grandfather of CDR. ROBERT Adamson USCG (ret); Coast Guard aviator number 205 and member of the Ancient Order of Pterodactyls

1916 - The Beginnings of Coast Guard Aviation:

Rendering assistance to vessels in distress was not a specific mission of the Revenue Cutter Service until 1832 when the Secretary of the Treasury Louis McLane directed several cutters to actively cruise solely for that purpose. Revenue Cutters were kept busy searching for and assisting vessels in distress, hauling in derelicts, and blowing up menaces to navigation. Most of these incidents occurred during the winter. By 1837 a specific “Winter Cruising Schedule” was maintained and the cutters were continuously at sea cruising an assigned area from about the middle of November well into the spring except for those periods required to replenish supplies and fuel. Originally conducted along the Atlantic seaboard, primarily in response to the schooner trade to and from the Caribbean, the area of responsibility continued to expand and as a matter of course the task of assisting distressed vessels of all types encompassed the Great Lakes, the Gulf Coast, Pacific Coast, and Alaska. Vessels in trouble at sea had to be searched for – the sea is vast – and time was of an essence. This then was the background for the need of Coast Guard aviation. Aircraft in their infancy did not have the all weather capability they do now but an airplane, in weather that would allow it to fly, could effectively search enormously greater areas in much less time than a cutter.

Two visionaries, 3rd Lieutenant Elmer F. Stone and 2nd Lieutenant Norman B. Hall assigned to the USCGC ONONDAGA under the command of Captain Benjamin M. Chiswell recognized the potential of aerial search. They saw clearly the benefit of utilizing aircraft to assist vessels in distress and to search for disabled vessels and obstructions to navigation and enlisted the assistance of the commanding officer. With the full backing and active participation of Captain Chiswell the next step was to evaluate the feasibility of the concept. What was needed was an airplane to run a series of tests with the ONONDAGA demonstrating the value of aircraft in Coast Guard operations. The ONONDAGA was based at Hampton Roads, Virginia near Newport News Virginia where Glenn H. Curtiss had set up the Curtiss Aeroplane and Motor Company Flying School at Boat Harbor Point. An evaluation plan was formulated and in early March Chiswell, Hall, and Stone presented their plan to Glenn H. Curtiss and the head of the flying school Captain Thomas S. Baldwin.



CAPT Benjamin Chiswell 2nd LT Norman B. Hall 3rd LT. Elmer F. Stone

Captain Baldwin cooperated by loaning the Coast Guard a pilot and a Curtiss Model F flying boat. The tests were so promising that Baldwin offered to place a plane at Stone's disposal for the purpose of conducting further tests. Captain Chiswell requested that Stone be assigned to aviation duty. The Captain-Commandant concurred and he issued orders with the following instructions to Captain Chiswell dated March 21, 1916.

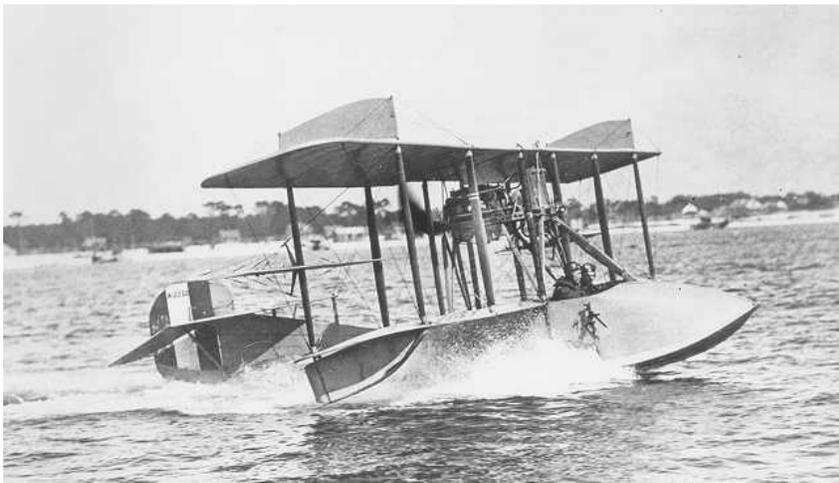
Sir:

Referring to orders this date assigning Third Lieutenant E.F. Stone to duty in connection with aviation, copy attached, it is suggested that whatever experiments are to be made by that officer involving the cooperation of aircraft with Coast Guard cutters, you confer with him and arrange to have him act in conjunction with the ONONDAGA.

It is understood that these experiments will not interfere with the regular duties of the ONONDAGA and that the Government will be put to no extra expense thereby.

Respectfully,

E.P. Bertholf s/s
Captain Commandant



Curtiss MF Flying Boat

Upon a highly successful completion the tests received official approval from the Captain-Commandant. In addition the US Navy, having been apprised of the success of the tests, offered flight training to assist the Coast Guard in implementing an aviation program.

Captain Chiswell continued to lobby for Coast Guard aviation. In April The USCGC ONONDAGA was moored at the Washington D.C Navy Yard. During a wardroom lunch for the Assistant Secretary of Treasury and Glenn H. Curtiss, Captain Chiswell proposed “A surfboat as a flying boat with wings and a motor so arranged that it might be quickly eliminated when the boat lighted on the water and within minutes it would be an ordinary motor surfboat.” The idea was not fully practicable but the concept of a “flying lifeboat” remained part of Coast Guard aviation psyche until the retirement of the last HH-3F helicopter in 1994. Curtiss did design his B-T “Lifeboat” airplane in response to Chiswell’s request. It had a wingspan of 56’9” and a hull length of 24’11.” It was powered by two 200hp Curtiss V-2 engines and had four-bladed chain-driven propeller. It also had an internal hull-mounted motor. The wings and tail could be jettisoned if forced down at sea. It was sold to the US Navy but proved unsatisfactory. However, many of the design features were incorporated into the NC aircraft that made the First Transatlantic Flight.

In April, Captain Charles A. McAllister USCG was assigned to a new Headquarters position as Chief Engineer, Aviation Section. That August Captain McAllister drafted a tentative bill, introduced in the Senate, to provide \$1,500,000 to establish an “Aerial Coastal Patrol.” This legislation was included in the Navy Deficiency Act of August 29, 1916. In addition to putting life back into Naval Aviation it contained a provision which authorized the Coast Guard to build ten air bases along the sea coasts and the Great Lakes and provide for the training of pilots at Pensacola. Thus Congress officially recognized that aviation was needed to carry out the duties of the Coast Guard. The funding for the airbases was not forthcoming but the Coast Guard did train additional pilots and enlisted maintenance and support personnel.

Coast Guard Aviation had become a reality !

1916 – The Navy Offers Flight Training to the Coast Guard:

LT(jg) R.G. Thomas who was in charge of the Navy Hydrographic Office in Norfolk Virginia, like a number of others, had become interested in the flight tests being conducted in conjunction with the Coast Guard Cutter ONONDAGA. Based on test result and an awareness of the Coast Guard coming need for pilots to continue evaluation flights, Thomas, apparently on his own initiative, sent a letter to the Navy Department via the Hydrographer in Washington, DC informing the Department of this situation. The Secretary of the Navy in his letter of March 21, 1916 replied as follows:

To: Lieut. (jg) R.G. Thomas, U.S.N. Branch Hydrographic Office, Norfolk, Va.,
Via: Hydrographer

Subject: Training in aviation for officers of the Coast Guard Service

1. It is gathered from your letter that you are in touch with officers of the Coast Guard Service who contemplate taking training in aviation. You are authorized to inform such officer or officers that if the Captain-Commandant of the Coast Guard Service will make a request on the Navy Department for the opportunity for the training of his officers, the Department will be very glad to add two Coast Guard Officers to the class at Pensacola.
2. A new class will be formed April 1st, and it would be advantages if these requests should be received in time for the officers to take up the course on that date.

Joseph Daniel s/s

Response was rapid. Lt(jg) Thomas forwarded Secretary of the Navy Daniel's letter on March 23rd and on the same day it was on the way to Coast Guard Headquarters with Captain Chiswell's endorsement which read in part:

“If Lieut. Stone could be detailed to the Navy Aviation School at Pensacola in this class to be formed April 1st; he could in a short time period obtain a pilot's license and be grounded for taking up the work outlined in Captain Baldwin's offer. I believe it would not be many months before we might be able to conduct some very interesting and valuable experiments here without cost to the Government.”

B.M. Chiswell s/s
Captain USCG

The Acting Secretary of the treasury submitted the following request to the Secretary of the Navy on March 25th.

Sir:

I have the honor to request that an opportunity be affected this department to have two officers of the Coast Guard receive flight training in aviation at Pensacola in the class which, it is understood, will be formed on April 1, 1916.

In the event of favorable consideration of the foregoing, I would request that you furnish this department with several copies of the circular relating to the physical requirements of officers detailed to aviation duty.

Respectfully,

Byron R. Newton s/s
Acting Secretary

On April 1, 1916 3rd Lieutenant Elmer F. Stone followed by 2nd Lieutenant Charles E. Sugden reported to the US Navy Aeronautic Station, Pensacola, Florida for assignment to Naval flight training. In October 2nd Lieutenant Norman B. Hall was ordered to the Curtiss Aircraft Company to study aircraft engineering and construction. The rapidity with which this series of events took place is very unusual.

The official beginning of Naval Aviation was May 8, 1911 when Captain Washington I Chambers USN, who had been designated as Officer in Charge of Aviation, issued requisitions for two Curtiss biplanes. The Navy Department had been awakened to the potential of the aircraft in Naval operations during the previous year. Eugene Ely had flown a Curtiss biplane from a specially built platform on the cruiser BIRMINGHAM on November 14, 1910. Two months later, January 18, 1911 he landed a Curtiss pusher aboard the cruiser PENNSYLVANIA. A few weeks later the seaplane made its appearance. The first three Naval Aviators were given instruction at the Curtiss installation. This was followed by a camp established at Groonsbury Point near Annapolis, Maryland, and initial naval flight operations began.



tent hangars was set up along the beach with wooden ramps running from the tent to the water. This is how Lieutenants Stone and Sugden found it when they reported to flight training in 1916.

The initial aircraft used for flight training was a Curtiss AH-9 seaplane with bamboo outriggers. The AH-9 was a “pusher type” meaning the engine was mounted with the propeller facing aft thus propelling the aircraft forward as a reaction to the air being “pushed” aft. This provided excellent forward vision for the pilot. The aircraft proved dangerous, however, because the engine mounting was



weak and if the aircraft crashed the engine would fall forward crushing the pilot. CDR Mustin asked that the aircraft be replaced but with no immediate substitute aircraft available 18 additional AH-9s were ordered by the Director of Naval Aviation. The Director did agree to order experimental “tractor” type aircraft from both Curtiss and Martin which had the engine mounted forward and “pulled” the aircraft through the air. Several more accidents occurred killing the pilots resulting in the grounding of the AH-9s.



The Naval Deficiency Act of 29 August 1916 provided funds for the purchase of 30 Curtiss N-9 “tractor” seaplanes. This was an adaptation of the Army’s JN “Jenny” airplane. To make the conversion a single large pontoon was mounted below the fuselage with a small float fitted under each wing tip. These changes required a ten foot increase in wingspan to accommodate the additional weight. Further modifications to the standard “Jenny” design

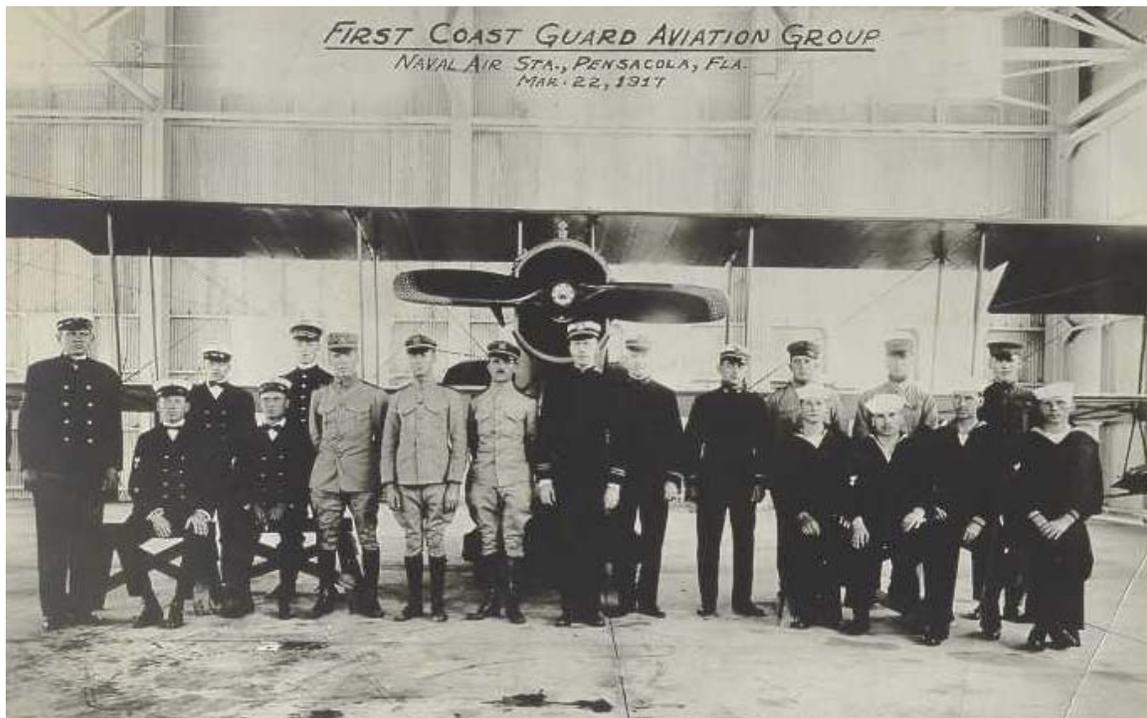
were required to compensate for stability problems. These included lengthening of the fuselage and increasing the area of the tail surfaces. The N-9 was originally developed with 100 HP OXX-6 engine. This was replaced with a 150HP Hispano-Suiza engine that was being manufactured under license. Of note is the fact that the Navy utilized wind tunnel data developed at the Massachusetts Institute of Technology. The N-9 was the first U.S. Naval aircraft to incorporate wind tunnel data directly into its design.

This same Act provided the means by which the Coast Guard sent an additional 15 personnel to Pensacola for flight and aviation support training. Both Stone and Sudgen upon completion of training were assigned as flight instructors.

Lieutenant Eugene Coffin, who would rise to the rank of Rear Admiral, arrived in late November of 1916 to commence flight training. He stated that; “In early April while I was still under instruction, Lieutenant Stone and I spun into the Bay from 600 feet --- the first tailspin they had ever seen there. The plane was completely washed out and I had a broken nose and a split upper lip.” The method of recovery from a spin was accidentally discovered by Marine Captain Francis Evans. At altitude, out of sight of the air station, he attempted to loop the aircraft. He went into a shallow dive to gain speed but on the “pull up” he stalled out and the aircraft snapped into a spin. He realized he had stalled and that the aircraft was rotating very fast. His reaction was to nose the plane over to regain speed and when he tried to stop the rotation using his rudder, it worked! He repeated this maneuver several times picking up a little more speed on each subsequent attempt and spinning out on each occasion. Finally he was able to complete the loop. Having taught himself the technique of looping the aircraft and recovering from a spin, he decided to demonstrate the procedure in full view of all hands. Arriving back over the station he

looped the airplane followed up by another loop in which he stalled the airplane. He allowed the airplane to make three turns and then made his recovery. From that time on, spin recovery became a part of the flight course. In 1936, some twenty years later, Evans was retroactively awarded the Distinguished Flying Cross.

War was declared on Germany on 6 April 1917 resulting in increased activity at a much more rapid pace.



From left to right:

- C.T. Thrun, Master at Arms, later a warrant officer who was killed while flying at Cape May, N.J., in January, 1935;
- J. F. Powers, Oiler First Class, who later left the service;
- George Ott, Ship's Writer, who later left the service;
- C. Griffin, Master at Arms, who later left the service;
- John Wicks, Surfman;
- Third Lieut. Robert Donohue, who became Rear Admiral, was Chief Air-Sea Rescue Office, Chief, Personnel Office at Headquarters, retired June 1, 1946.
- Second Lieut. C. E. Sugden, who retired a Captain on August 1, 1946;
- Second Lieut. E. A. Coffin, who retired a Rear Admiral on April 1, 1950;
- First Lieut. S. V. Parker, who retired as Vice Admiral Sept. 1, 1947;
- Second Lieut. P. B. Eaton, who became Rear Admiral, and Assistant Engineer-in-Chief at Headquarters, retired August 31, 1946.
- *Third Lieut. E. F. Stone, designated Coast Guard Aviator No. 1 who in 1919 made history as pilot of the Navy Seaplane NC4 that made the first trans-Atlantic crossing, was a Commander when he died May 20, 1936.

- Ora Young, Surfman, who later left the service;
- W. R. Malew, Coxswain, who later left the service;
- J. Meyers, Surfman, who later left the service;
- J. Medusky, Asst. Master at Arms, who later left the service;
- R.F. Gillis, Signalman Quartermaster
- W. S. Anderson, Surfman, who retired as a Lieut. Commander, November 1, 1946;
- L. M. Melka, Signal Quartermaster, later became a Lieutenant.

1917 – Coast Guard Aviation in World War I:

The United States entered World War I during April of 1917. There was a small group of aviation pioneers that had promoted and nurtured the early growth of Naval Aviation but the Naval Air establishment was too small and was not equipped for combat operations. There was only one air station, a training base at Pensacola, 54 non-combat training aircraft, 48 aviators plus a small number in training, and 239 enlisted personnel. Between the declaration of war and the signing of the Armistice, a period of 19 months, growth was remarkable and at times chaotic. Air stations were established on both sides of the Atlantic. By wars end there were 27 bases in Europe, two in Nova Scotia, Canada, one in the Canal Zone, one in the Azores and 12 in the United States. Training programs were established at new air stations, on university campuses, and with private contractors. The navy trained 3,049 aviators and 43,452 enlisted personnel. In addition there were 2000 aircraft and 15 lighter-than-air craft added to the inventory.

The Coast Guard had made arrangements to send two officers to Naval flight training during 1916. The officers were 3rd Lieutenant E.F. Stone and 2nd Lieutenant C.E. Sugden. They were followed by four additional Officers and three enlisted men who were assigned to flight training in late 1916. On 7 April 1917 the Coast Guard was transferred to the Navy Department for the duration of the war. Stone was designated a Naval Aviator on 10 April and was closely followed by Sugden. The first contract for base construction along the Atlantic Coast was let on 14 June. In the interim Stone and Sugden were utilized as flight instructors at Pensacola.

Very few regular Navy officers were assigned to flight training due to fleet requirements. This was also the case with the Coast Guard. It was planned to send nine additional officers to flight training but they too were needed to man the cutters. The vast majority of aviators, aviation ground officers, and enlisted specialist were produced by the Naval Reserve Flying Corps. Recruitment for the USNRF took place on college campuses and from among qualified civilian pilots. Initially there were a few enlisted pilots almost all of whom were later commissioned. This practice was discontinued and replaced by a program commencing in the summer of 1917, whereby enlisted personnel with “officer potential” were selected for flight training, discharged from the Navy, and then commissioned in the USNRF and upon completion of flight training were designated Naval Aviators. As a result of these procurement programs the Coast Guard officers were senior to most of their Navy contemporaries. Additionally, previous duty assignments as Revenue Cutter Officers provided operational experience that was both desired and required by the fledging Naval air arm. This resulted in their being assigned as commanding officers of air stations or to other significant duties.



1st Lieutenant Stanley V. Parker USCG took the regular seaplane course at Pensacola and then took lighter-than-air training. From Pensacola he was ordered to establish and command the Naval Air Station, Key West, Florida which carried out anti-submarine patrols. In addition 500 Naval Aviators were qualified under his command. From August 1918 until July 1919, he commanded the Naval Air Station Rockaway Beach , New York. This is the location where the NC flying boats were assembled and tested and preparations made for the first flight across the Atlantic Ocean. During 1942 Rear Admiral Parker was Commander of the Third District and was active in persuading the Commandant, Admiral Waesche, that there was merit to helicopter development. Vice Admiral Parker retired September 1, 1947.



Beginning in March, 1918, HS-1 flying boats were shipped to France and assigned to U.S. naval air stations. The Naval Air Station, Ile Tudy, France, 1st Lieutenant C.E. Sugden USCG Commanding Officer, flew anti-submarine patrol in HS-1 aircraft. The station was credited with the sinking of three enemy submarines. It was considered one of the most important Air Stations on the French Coast. At the conclusion of hostilities Lieutenant Sugden was authorized to accept the “Chevalier of the Legion of Honor of France.” Captain Sugden retired April 1, 1950.



2nd Lieutenant Eugene A. Coffin USCG after his designation as a Naval Aviator was assigned as Commanding Officer of newly enlisted recruits at Pensacola. In December of 1917 he was transferred to the Naval Air Station Montauk Point where he served as a patrol plane pilot and was placed in charge of developing the communications system. On 28 August he was assigned as the executive Officer of Naval Air Station Rockaway, N.Y. under the command of Captain Stanley V. Parker USCG. Rear Admiral Coffin retired April 1, 1950

1st Lieutenant Phillip B. Eaton USCG, upon being designated a Naval Aviator was assigned as Commanding Officer of the Naval Air Station, Chatham, Massachusetts. During the late spring and summer of 1918 the German Navy stepped up submarine attacks on shipping off the East Coast of the United States. On July 21, 1918 a surfaced German submarine was firing on a tugboat and three barges off Cape Cod. It was attacked by two seaplanes from NAS Chatham. Lieutenant Eaton, who regularly took patrol flights, made his approach and dropped two bombs. One landed on the submarine and the other close to the submarine's hull. Neither bomb exploded and the submarine submerged and escaped. Eaton did prevent the sinking of the tug and barges. Rear Admiral Eaton retired August 31, 1946.

There were three different schools of thought within the Naval air establishment on the preferred means of taking air power to sea. The long-distance flying boat would prove very impressive as design progressed from the HS-1 through H-16 and the British F5L, leading to the Curtiss NC aircraft. All had the mark of Glenn Curtiss. The lighter-than-air people pointed to the success of the upgraded DN-1 and dirigibles obtained from the French in March of 1918. Goodyear produced the B model non-rigid dirigibles followed by the much improved C models but it was not until 1919 that the Navy Airship Program was authorized and LTA became a significant segment of Naval Aviation. The third group were of the opinion that aircraft should fly from combatant ships of the fleet.

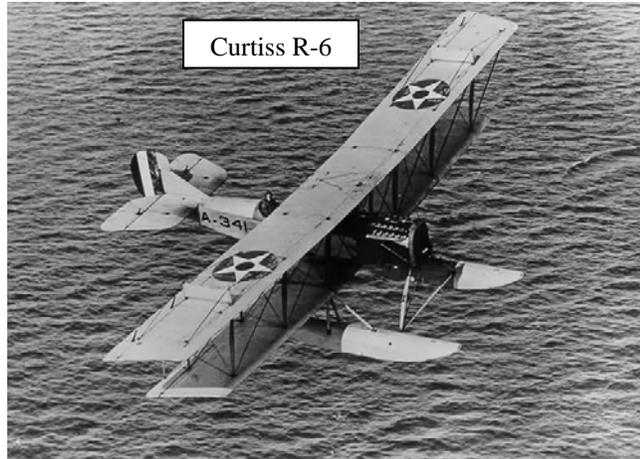


Curtiss H-16 Flying Boat

On July 12, 1916 Lieutenant G deC Chevalier was launched from the first catapult designed for shipboard use aboard the Armored Cruiser NORTH CAROLINA. In April of 1917 the Armored Cruiser HUNTINGTON was at the Mare Island Navy Yard for the installation of a catapult of the type installed on the NORTH CAROLINA. The HUNTINGTON Arrived in Pensacola on May 28, 1917 for a series of tests and evaluations. 3rd Lieutenant E. F. Stone USCG, 3rd Lieutenant Robert Donohue USCG and CAP C.T. Thrun USCG were

ordered aboard as part of a nine man aviation detachment. Lieutenant Marc Mitscher USN had reported aboard at Mare Island as Senior Aviator. The commanding Officer of the USS HUNTINGTON, Captain J.R. Robinson was not favorably disposed to having an aviation detachment aboard his ship. The first plane went aboard in June but very little was done with it. When evaluations were made the aviation detachment personnel were not consulted. On one occasion the Captain attempted to drop a seaplane into the sea with the ship moving in much the same fashion as a whale boat on a painter. He reasoned that the aircraft would then take off from the water making the installation of the catapult unnecessary. When the aircraft made contact with the water it promptly flipped over and was wrecked.

In late July Mitscher and crew received the new twin float R-6 seaplanes. He got his planes and stores aboard, On 1 August the Huntington departed for New York and was assigned to lead a convoy into the Atlantic. The Planes were dismantled, put below and never flown. There was a flaw in the catapult design in that each time the catapult was used the catapult carriage car was lost over the side. When the ship returned to New York in October, the aviation detail and aircraft were transferred ashore and the catapult was dismantled. Stone solved this problem years later when he invented the powder catapult, which became the navy standard on cruisers and battleships.



Lieutenant Elmer F. Stone was transferred from the aviation detail aboard the USS HUNTINGTON to the Bureau of Construction and Repair where he became the chief test pilot for seaplanes in the aviation division. Lieutenant Stone, at the Navy's request, was assigned duties in support of the Navy during the next nine years. In addition to being the Pilot of the NC-4 for the first Transatlantic Flight he lead in the development of shipboard catapults and aircraft carrier catapults and arresting gear. Commander Stone died when suffering a coronary thrombosis attack while assigned as Commanding Officer of Coast Guard Air Patrol Station San Diego May 26, 1936.



2nd Lieutenant Donohue was transferred from the aviation detail aboard the USS Huntington and assigned duties as Commanding Officer of the Naval Air Station at Sydney Nova Scotia, Canada. He then became Commanding Officer of Naval Air Station Montauk Point New York and became involved in lighter-than-air aircraft. He provided flight test support for the C-5 dirigible that made an unsuccessful attempt to complete a Transatlantic Flight. Rear Admiral Donohue retired June 1, 1946.

The Coast Guard did not return to the jurisdiction of the Treasury department until August 28, 1919. This was accomplished with much controversy. The Navy wished to retain the Coast Guard and a large portion of the Coast Guard Officer Corps favored this course of action. Coast Guard aviators had served with distinction during the war and several continued to serve with the Navy for a period after the armistice. Lieutenant Elmer F, Stone added to Coast Guard aviator reputation by piloting the Navy's large flying boat NC-4 on the first transatlantic flight in May 1919. The continued existence of Coast Guard aviation as an entity became critical upon the return to the Treasury Department.

Evolution of the Rank Structure of the Coast Guard:

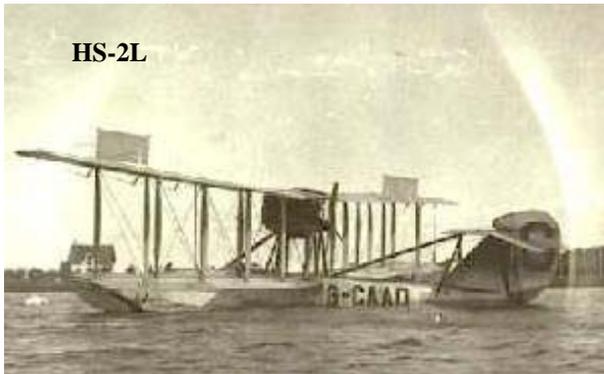
The Coast Guard came into being on January 28, 1915 and the new service attained full military status. Neither the Life-Saving Service or the Revenue Cutter service had this distinction. Modifying legislation, signed into law the following year, specified that when the Coast Guard was serving with the Navy, precedence between commissioned officers in corresponding grades in the two services would be determined by date of commissions in those grades. There existed however a disparity in the opportunity for promotion within the Coast Guard when compared to that of the Navy Officer. The Coast Guard had only one Officer, the Captain Commandant , who ranked with captains in the Navy. For practical purposes, the highest rank a Coast Guard Officer obtained aspired to was that of Coast Guard Captain which corresponded to a Navy Lieutenant Commander.

Coast Guard Rank	Equivalent Navy Rank
Captain-Commandant	Captain
Senior Captain	Commander
Captain	Lieutenant commander
1 st Lieutenant	Lieutenant
2 nd Lieutenant	Lieutenant Junior Grade
3 rd Lieutenant	Ensign

In may of 1920 Congress enacted a measure to equalize the pay and allowances of Coast Guardsmen with that of the Navy. Legislation of June 1920 required the Coast Guard to adopt Navy rank terminology as illustrated in the above table. Morale would suffer considerably when all temporary wartime promotions were rescinded in 1921. In response to repeated urging by Secretary of The Treasury Andrew Mellon Congress passed a Bill, signed by President Warren Harding in January of 1923 that removed most of the inequities experienced by coast Guard officers, The Bill provided that the Commandant rank with the Navy's Rear Admirals lower-half and authorized seven senior officers to the rank of Captain. Maximum numbers for lower ranks were adjusted accordingly. Most importantly, provision was made for promotion at regular reasonable intervals.

1919 – NC-4 Transatlantic Flight:

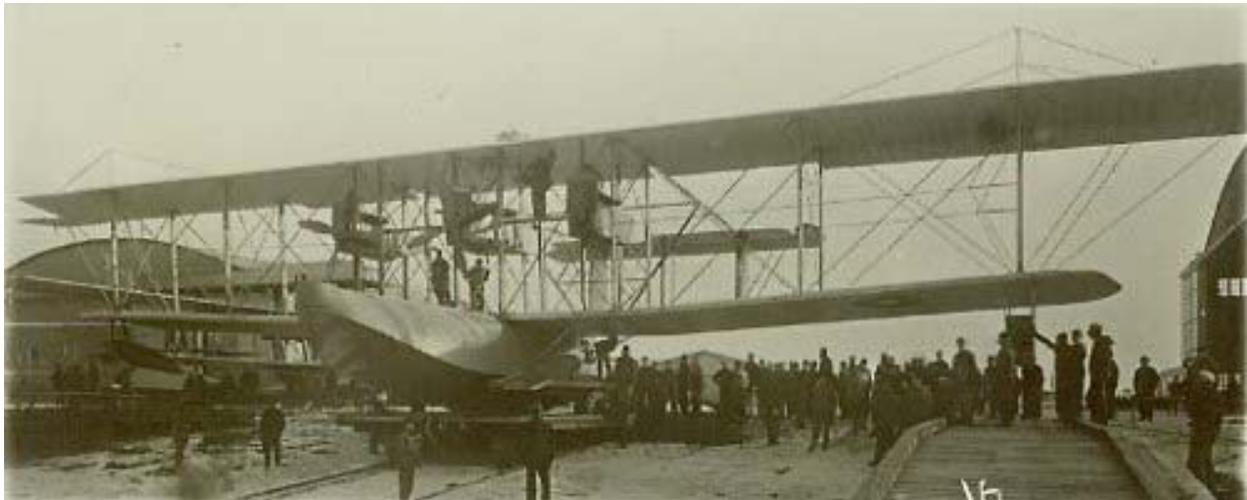
In the summer of 1917 the United States was fully engaged in World War I and was very concerned about the sinking of Allied ships by German submarines. The Navy was convinced that aircraft had real possibilities as an anti-submarine weapon and developed a steadily improving series of patrol planes capable of flying from the water. There was outstanding improvement in the performance, range, and armament of the flying boat between the beginning of the war and the cessation of hostilities. The initial production HS-1L/2L is shown below left. The much improved H-16 is shown below right. All could trace their ancestry to the work of Glenn Curtiss.



The aircraft proved to be effective but were limited in fuel and depth charge capacity. They also had to be transported to Europe by ship. Ironically, ships carrying the aircraft capable of combating the submarines were being sunk by the submarines. RADM David W. Taylor, the chief of the Navy's Construction Corps, was convinced that what was needed was a flying boat capable of carrying adequate loads of bombs, depth charges and defensive armament, with a range that would enable it to fly from the United States to Europe. In September of 1917 Taylor formed a team of key men, CDR G.G. Westervelt, CDR Holden C. Richardson, and CDR Jerome C. Hunsaker, and directed them to create such an aircraft. Glenn Curtiss was contacted and within three days Curtiss and his engineers submitted general plans based on two different proposals.

One proposal was for a three engine aircraft, the other a very large five engine aircraft. Both were similar in appearance and differed from conventional seaplanes of the period in that the hulls were much shorter. The large tail assembly supported by hollow wooden booms rooted in the wings and hull was high enough to remain clear of breaking seas during water operations. Many of the design concepts had been embodied in a Curtiss design for a "flying lifeboat" which was the product of the meeting between Glenn Curtiss and Captain Benjamin Chiswell USCG on board the USCGC ONONDAGA while moored at the Washington D.C. Navy yard in April of 1916. The criteria for success was a seaworthy hull which would tend to rise out of the water while in motion at high speeds and reliable engines that would provide sufficient power for their weight. Evaluation of weight and load carrying potential and the availability of the light *Liberty* engine resulted in the selection of a three tractor engine design. This would later be modified to

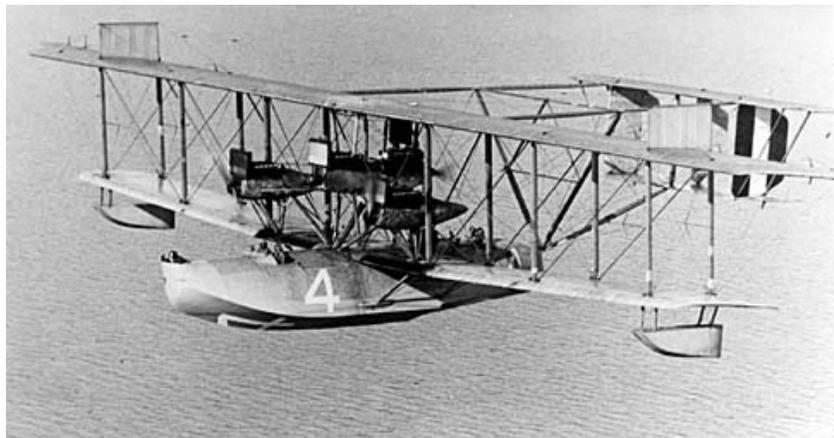
three tractor engines and one mounted as a pusher which enabled the aircraft to lift off the water with a greater amount of fuel on board.



NC-1 in original three engine configuration

CDR Richardson was responsible for the hull design. The hull which was 45 feet and 9 inches in length with a 10 foot beam was built of spruce. Lateral stability was provided by small pontoons mounted under the tips of the lower wing. The strength of the hull was proven when the NC-3 was forced to land short of its destination during the Transatlantic Flight and was pounded by heavy seas for two days without sinking. The overall length of the plane was 68 feet 3 inches and the wing span was 126 feet, The aircraft was designated NC, the N was for Navy and the C for Curtiss. The press referred to them as *Nancys*.

By December of 1917, design work had progressed to the satisfaction of Secretary of the Navy Daniels and a contract for four flying boats was approved. It was decided to assemble the aircraft at the Naval Air Station Rockaway, New York. Captain Stanley V. Parker USCG was the Commanding Officer of the Air Station and his Executive Officer was LT. Eugene Coffin, USCG. CDR John H.



Curtiss NC-4

Towers USN was the project officer. A special hangar was constructed and the NC-1 assembled by the first of October

On 4 October CDR Richardson ran a series of taxi tests gradually increasing speed until the aircraft lifted from the water for a few seconds. He then taxied back to the beach and sent word for CAPT Parker to come aboard for the first official flight of the NC aircraft.

The Armistice was signed on November 11, 1918 bringing hostilities to a conclusion. There was no longer a pressing need for a long range anti-submarine airplane. The urgency had gone out of the NC project. While in Europe, CDR Westervelt had learned that several organizations were making preparations for a Trans-Atlantic Flight. In 1913 Lord Northcliffe, the wealthy owner of the *London Daily Mail*, offered a prize of 10,000pounds (\$50,000) for the first successful Trans-Atlantic flight. With the outbreak of World War I the offer was cancelled but renewed after the war. Upon his return to Washington Westervelt wrote a 5000 word report expressing the need to participate with government backing which would result in a considerable amount of deserved prestige. The report outlined proposed routes and procedures. Secretary of the Navy Daniels approved the basic plan and work at the Rockaway Air Station resumed a feverish pace.

There had been a change in Lord Northcliffe's rules when the prize was reinstated. Mid-ocean stoppages would no longer be allowed thus effectively eliminating the NC's. It made little difference as the United States had made no attempt to file an entry fee and the Navy crews would not have been able to accept any possible prize money that might have been awarded. The attempt had become one of accomplishment and pride on the part of the Navy. Credence was lent to this announced policy when in an unprecedented ceremony the three flying boats were placed in commission as if they were ships of the line. CDR John Towers formally assumed command of NC Seaplane Division One. His orders signed by Franklin D. Roosevelt, acting Secretary of the Navy, gave Towers a status roughly equivalent to that of a destroyer flotilla's commander. The Navy had committed to go all out. A Trans-Atlantic departure date of 6 May was chosen. While the flying boats were being readied for the flight the NC-2 was damaged in an accident during take-off during evaluation testing. On the night of 4 May a fire damaged the NC-1 and NC-4. Parts from the NC-2 were used to repair the NC-1 and NC-4 in an around the clock effort leaving only three aircraft for the attempt.

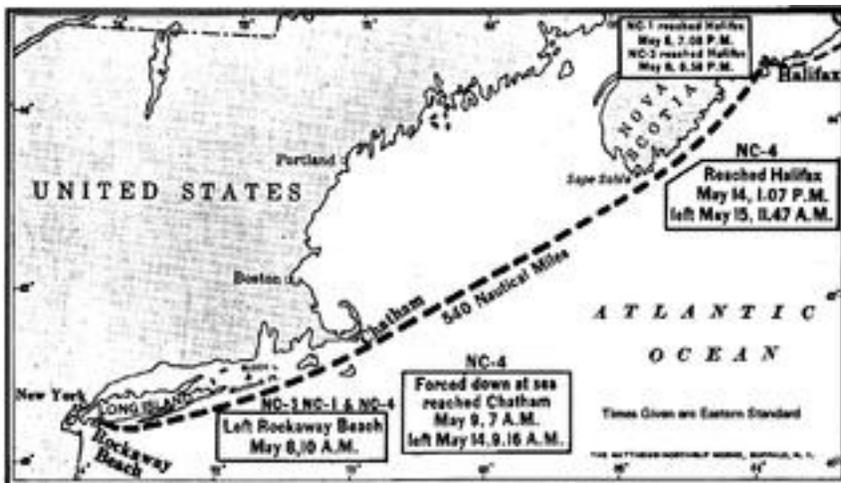
Towers chose NC-3 as his "flagship" and chose CDR H.C. Richardson as his first pilot with LT David McCulloch as his co-pilot. LCDR P.N.L. Bellinger was in command of NC-1 with LCDR Marc Mitscher assigned as first pilot and LT Louis T. Barin as co-pilot. NC-4 was commanded by LCDR Albert C. Read with LT. Elmer Stone USCG as first pilot and LT(jg) W. K. Hinton as co-pilot. Other crewmembers of NC-4 were Ensign H.C. Rodd, radio operator; Lt. James Breeze, engineer; and Chief Machinists Mate E.C. Rhoads, relief engineer. The Aircraft Commanders were navigators and operated from the bow of the aircraft. In addition to standard navigational gear they were equipped with the new "bubble sextant" and a drift indicator

Dr. (CDR) Hunsaker in his memoirs states:

"The big boats had dual controls and the two aviators sat side by side and worked together on the controls which required strong effort at times. Read was a relatively small man, and he chose Stone because of his size and strength. The

two were a good team. Stone had experience with flying boats, which were notoriously difficult to keep from stalling in rough air or at reduced speed. Stone also had experience in bad visibility weather. Stone had been a test pilot and knew how the crude instruments of the day could give indications contrary to the reliable “seat of the pants” signals of acceleration. On the eighteen hour flight of the NC-4 to the Azores, Reed’s function as a navigator required him to stand in the forward cockpit. Stone was in fact the chief aviator with Lt Walter Hinton sitting beside him as a partner.”

The planned route of flight would take the aircraft over Cape Cod to Halifax, Nova Scotia and then from there to Trepassey Bay, Newfoundland. The next leg would be 1300 miles to the Azores and then to Lisbon Portugal. After crossing the Atlantic, the NC-4 flew on to Plymouth, England. The support was massive. Five battleships served as weather stations and destroyers were placed at 50 mile intervals along the open ocean track on the planned route. The Destroyers were equipped with special radio direction finders and star shells to be fired as the planes passed overhead.



Time was of the essence. There were others preparing to make the flight across the Atlantic. There had been no departure date given the press so there was little fanfare as the three NC flying boats lifted off at 10:00 am on the 8th of May. The NC-4 had flown only once prior to the departure and the leg to Halifax was to serve as the “shakedown” flight. After passing Cape

Cod and over the open sea the NC-4 had to shut down the center pusher engine due to an oil leak. LCDR Read realized this would slow him but elected to continue on as the aircraft would fly well on three engines. At 2:05 pm they passed over the first “station,” the destroyer McDERMUT, on course. They were headed for the next destroyer when the center tractor engine blew a rod. A distress signal was sent out which both destroyers heard. Towers assumed the aircraft would land next to the McDERMUT for repairs and continued on. Course was altered but the aircraft was losing altitude in poor visibility and with the water calm enough for a safe landing Read directed the NC-4 be turned into the wind and a landing made. Once on the water they could not get through on the radio. Finding themselves in the open sea, 80 miles from the nearest land they commenced a taxi for Chatham Air Station. At dawn, just off the beach, they were spotted by two search aircraft. Within two days the bad engine was replaced and the other repaired. The only engine available at Chatham was a 300hp liberty but it had to do until the NC-4

reach Trepassey Bay where a 400hp engine was available. Departure from Chatam was delayed until the 14th because of a 40 knot northeaster.

The NC-1 and NC-3 ran into heavy weather enroute. Buffeted by gusty winds it took the effort of both pilots to remain on course. They arrived at Halifax that day but propeller problems delayed their departure until the 10th. They followed the line of “station” ships and as they passed Placenta Bay they sighted their first icebergs. The air remained rough and it was now cold. At Trepassey Bay strong swells were running and the landings were made in strong gusty winds and an “avalanche of spray.” By evening both NCs were safely moored near the base ship USS AROOSTOOK. Weather was still delaying the British attempt from St.Johns and the press was once again focused on the big flying boats.



The NC-4 did not depart Chatam Air Station until the afternoon of the 14th which would have put them into Trepassey Bay after dark. Read decided to land at Halifax rather than to risk the night landing. The center engine vibrated badly on the flight and the two outboards were running rough with dirt in the carburetors. Breese and Rhoads worked on them and the NC-4 was back in the air at 1253 on the 15th bound for Trepassey Bay. Shortly after take off a message was received that the NC-1 and NC-3 would take off that afternoon. As the NC-4 rounded Powell's Point they saw that the NC-1 and NC-3 had not departed yet. They had been trying to take-off for a period of time but neither aircraft would lift from the water. Breese on the NC-4 knew what the problem was. The NC fuel gages had been calibrated with the aircraft on land. The aircraft had been moored in the harbor. On the water the aircraft rode slightly nose down so when a tank was filled to the full mark they held a little over 200 pounds of additional fuel. The weight critical NC-1 and NC-3 were too heavy for take off. Departure was rescheduled for the following evening so that the aircraft would be approaching the Azores during daylight. This gave the crew of the NC-4 time to change the center engine and test it in time for departure.



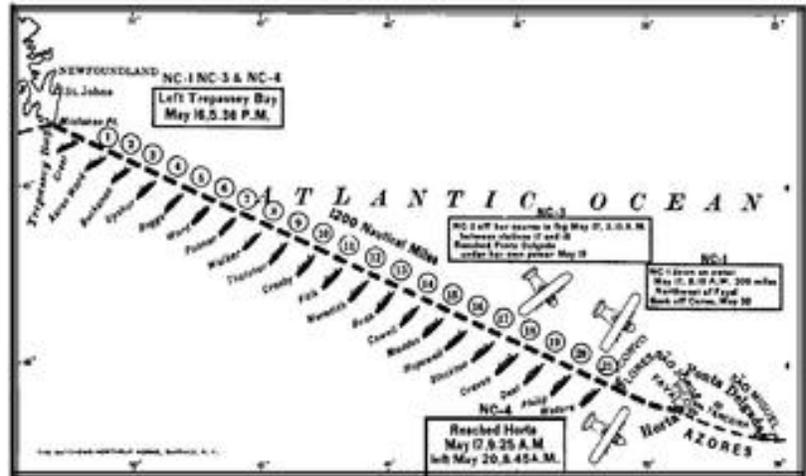
NC-4 taking off from Trepassey Bay enroute to the Azores

On the evening of the 16th the three NCs taxied out together and headed down the Bay in a formation take off. The NC-4 lifted off but the other two did not. They signaled for the AROOSTOOKS small boat to come alongside they began removing weight. The NC-4 had returned and landed. All three again took up positions as far back in the harbor as possible and at 1800 they started once again. Bouncing across the crests they took to the air, the NC-4 most easily of all. The route between Trepassey Bay and Ponta Delgada in the Azores was marked by a string of 25 “station” destroyers at approximately 50 mile intervals. The radio direction finders worked poorly but each destroyer was to make smoke, or if at night, swing a searchlight from the surface to straight up. Star shells were fired and a report by radio of the passing of the aircraft was made and the next destroyer alerted. Formation was maintained until dark when Towers ordered running lights be turned on. The lights on the NC-4 came on but not on the other two aircraft. Realizing this he ordered the formation opened up to reduce the danger of collision. Weather remained good through the night but with the morning came rain, thick low clouds and fog.

Towers spied a ship through a hole in the clouds. In the fog he mistook it for one of the “Station” destroyers. It was in fact the Cruiser MARBLEHEAD returning from Europe. Based on the sighting, Towers changed course. This was a costly mistake.. The NC-3 ran into heavy rain squalls and tried different altitudes all to no avail. The clouds were so thick they could not see their wing tips. Turbulent air would shake the wallowing aircraft and with the primitive instruments of the time it was difficult to determine the attitude of the airplane. BY 11:30 Towers figured he must be in the vicinity of the islands but he also knew he was off course. With two hours of fuel remaining and the very real possibility of running into a mountain on one of the islands he decided it would be better to set the aircraft down on the water and wait for the

weather to moderate. A descent was made and passing through 500 feet they could make out the surface of the ocean. It did not look too bad so he signaled Richardson to make the landing. They miss-read the swells hitting the first one hard, fell into the hollow, shot back into the air and smashed into the following wave. Struts on the center engine buckled, hull frames split and damage was done to the controls. It was apparent that flight could not be resumed. Communication attempts were futile. The aircraft drifted with the nose down into the wind which set it on a course to Ponta Delgada. Two days later the aircraft was in sight of the breakwater. Towers had the two outboard engines started. They vibrated badly but provided enough power to taxi into the harbor and up to a mooring buoy.

Bellinger in the NC-1 made the same decision as Towers. The aircraft had been flying at 75 feet for some time. Navigation was impossible and down that low they could not reach anyone on the radio. Mitscher was flying the plane and was ordered to land. When the NC-1 touched down it was buried in a large wave which broke the wing struts and tail beams. The wings began to fill with water and it was necessary



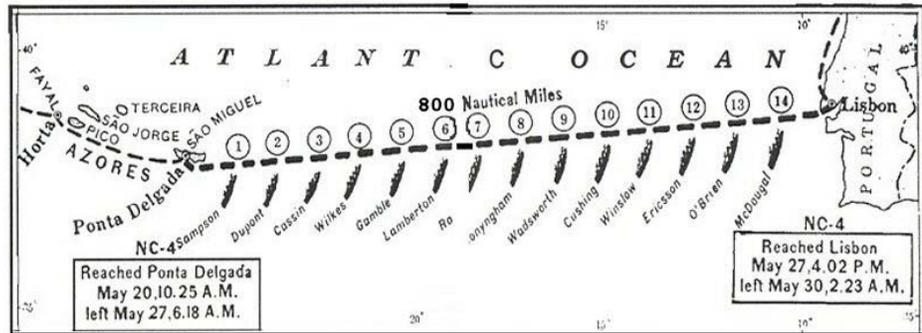
to slash the fabric. The hull had been damaged and was taking on water requiring constant bailing. About three hours after water entry they were spotted by the Greek Steamer IONIA and picked up. A short time later they were transferred to the USS GRIDLEY. An attempt was made to take the aircraft in tow but it was so badly damaged that it was decided to sink it.

The NC-4 was also in weather. As the weather continued to deteriorate Read motioned to Stone to take it up and the NC-4 broke out on top at 3200 feet. As they approached the position of the next destroyer Read gave orders to descend for a visual check. As they entered back into the clouds the aircraft began to buffet and became difficult to fly as was the norm. A wing dropped and the aircraft went into a spin. Apparently no one realized it until a glimpse of the sun was caught through a break in the clouds. Read shouted for Stone to bring it out of the spin. This he did. To bring such a large heavily loaded aircraft out of a spin in clear weather would have been an accomplishment but the NC-4 had reentered solid clouds with zero visibility and to be able to bring it out of a spin with the rudimentary flight instruments then available was an amazing feat. Once Stone had the aircraft under control he again climbed above the clouds. Read elected to stay there and use dead reckoning for the islands. In mid morning the NC-4 passed over an opening in the clouds. Read saw what he thought was a riptide. Examining the two shades of color below he realized that the darker mass was land. Read directed Stone to spiral down to 200 feet. Using time and distance and visual reference they determined they were at the southern tip of Flores, one of the western Azores. Read set a course for Ponta Delgada 250 miles away. They passed over a "station" destroyer shortly thereafter but it was not long before the weather began to deteriorate again. The fuel was too low to facilitate searching in case they missed

Delgada so Read decided to turn south for Horta on the Island of Fayal where the USS COLUMBIA was standing by. They landed in harbor at Horta at 1323. A tremendous welcome awaited Read and his crew.

For almost three days NC-4 rode her moorings at Horta, kept there by rain squalls and fog. On the 20th the weather cleared enough for takeoff, and in less than two hours the NC-4 reached Ponta Delgada. They were met by the governor, the mayor and a multitude of people. Towers and the crew of the NC-3 and Bellinger and crew of the NC-1 were there to greet them. It would

be 30 May before the weather was good enough to continue on to Lisbon. While at Ponta Delgada word came that the Britishers Hawker and Grievess had taken off from Newfoundland for Ireland on the 18th



and had been picked up by a steamer after being forced down 1100 miles east of St. Johns. Alcock and Brown were standing by for takeoff as soon as the weather cleared. On Tuesday May 27th, the crew of the NC-4 was up before dawn. The engines and radio was checked out and on the signal from Read, Elmer Stone advanced the throttles and the big flying boat lifted off in the early morning for Lisbon Portugal. Another chain of destroyers extended between the Azores and Lisbon. The weather was good and as the NC-4 passed over each destroyer the ship radioed a message of her passage to the base ship MELVILLE at Ponta Delgada and the cruiser ROCHESTER in Lisbon who in turn reported to the Navy Department in Washington. At 19:30 the flashing light from the Coda da Roca lighthouse was spotted and the NC-4 passed over the coast line. The big aircraft turned southward toward the Tagus estuary and Lisbon. At 20:01 on May 27, 1919, the NC-4s keel sliced into the waters of the Tagus. The welcome was tumultuous. A transatlantic flight, the first one in the history of the world, was an accomplished fact!

Early in the morning of 30 May the NC-4 departed Lisbon for Plymouth England. The NC4 sat down in the Mondego River to investigate an overheating engine. The radiator had developed a leak and was repaired but because of a low tide condition it became too late in the day to take off and reach Plymouth before dark so Read proceeded to Ferrol in northern Spain to spend the night. They were back in the air the next morning and as they approached Plymouth a formation of Royal Air Force seaplanes escorted the NC-4 into the harbor. A British warship fired a 21 gun salute as the NC-4 circled. The Lord Mayor of Plymouth received CDR Read and his crew and from Plymouth they went to London where they were decorated by the King of England. President Wilson, who was at the Peace Conference in Paris, sent for them, congratulated them for their outstanding achievement and introduced them to all present.

Lt. Stone was honored for his part in the NC-4 flight by the Portuguese Government with the award of the Tower and the Sword; by the British Government with the British Air Force Cross; and by the United States Government with the Navy Cross. He also received the following citation from the Acting Secretary of the Navy, Franklin D. Roosevelt, dated 23 August 1919.

“ I wish to heartily commend you for your work as pilot of the Seaplane NC-4 during the recent Trans-Atlantic flight expedition. The energy, efficiency, and courage shown by you contributed to the accomplishment of the first Trans-Atlantic flight, which feat has brought honor to the American Navy and the entire American Nation”

On 23 May, 1930, President Herbert Hoover presented Stone and the other members of the NC-4 crew with gold medals, especially designed to commemorate the NC-4 flight, in the name of the United States Congress.



The crew of the NC-4 at Lisbon: From the left Chief Machinist's Mate (Air) E.S. Rhoads, USN, Engineer; Lt. W.K. Hinton, USNRF, Pilot; Lt. J.L. Breese, USNRF, Engineer; Lt. E.F. Stone, USCG, Pilot; Lcdr. A.C. Read, USN, Commanding Officer and Navigator; Ens. H. C. Rodd, USNRF, Radio Operator does not appear in the picture.

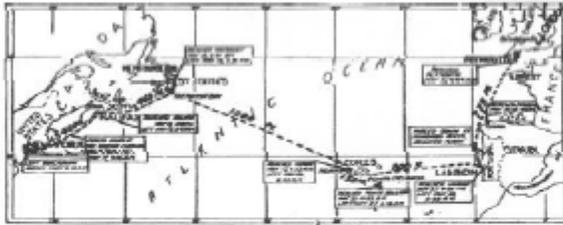
NC-4 FINISHES NEW YORK-PLYMOUTH FLIGHT; DRIVES STRAIGHT THROUGH FOG TO HER GOAL; SHE MADE 3,925 MILES IN 571-4 FLYING HOURS

FIRST DETAILS OF NC-4'S ARRIVAL AT LISBON

Liberty Engines Functioned Well and Passage Was So Smooth That Crew Had Comfortable Shave in Final Hour.

PICTURESQUE SCENE AS SHE LANDED ON THE WATER

Crew Taken to the Rochester Where Amid Notices and Massed Sailors They Stood at Attention to the Strains of National Anthem



NC-4's Journey from New York to Plymouth Across the Atlantic.

LUSTY BRITISH CHEERS FOR FLIER

Gracefully She Drops in Plymouth Harbor, Escorted from Far Out at Sea by British Airplanes.

GREETED BY MAYOR AT THE MAYFLOWER DOCK

Acclaimed by Throngs in Narrow Streets—500 Mile Trip from Fossil Made At 72-Mile Clip—Loaky Radiator Caused Monday Halt.

During its extraordinary 5,000-mile voyage, the following dispatches were received from Lisbon on an airplane that flew north, but when she had a check after the completion of the NC-4's flight across the ocean, according to the first details of the event, sent from the civil authorities of the Navy Department, received in America.

By WALTER BURNETT Special Cable to New York Times Bureau. LISBON, Tuesday, May 28.—"There she is!" A four-minute 10-second flight from the tip of the ship-oval harbor on the U. S. S. Shenandoah's water boat, which was held near the mooring buoy, a few hundred yards upstream from the water slip of the American seaplane.

IRISH FERMENT LAID TO WALSH

Ferocious Journalist Blamed Him for Saying American People Recognized Republic.

RAISED EXTREME HOPES

Stone Felt Forced to Hurden Position of Walsh.

WALSH, who is the son of the late John Walsh, a well-known Irish nationalist, is said to have been the author of the article in the New York Times which raised the hopes of the Irish people for the recognition of their republic by the United States.

British R-34 Ready to Fly in Footnote: Will Try to Cross Ocean from England

LONDON, May 28.—The great airship R-34 was recently taken to the British Admiralty as a footnote.

3 DIE IN AUTO RACE AT INDIANAPOLIS

Lemons and His Wrecking Mechanism Are Burned to Death Under Flying Car.

THORNTON ALSO LOSTS LIFE

Research Driver Placed in Death's Grip.

INDIANAPOLIS, May 28.—Three deaths were reported in the first day of the annual international automobile race at the city on the Saturday afternoon.

EXPECTS GERMAN NAVAL AGREEMENT TO DELAY SIGNING WITH ENGLAND?

French Foreign Office Member Saw Change in Building Program.

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Lt. Stone was honored for his part in the NC-4 flight by the Portuguese Government with the award of the Tower and the Sword; by the British Government with the British Air Force Cross; and by the United States Government with the Navy and the Navy Cross. He also received the following citation from the Acting Secretary of the Navy, Franklin D. Roosevelt, dated 23 August 1919.

"I wish to heartily commend you for your work as pilot of the Seaplane NC-4 during the recent Trans-Atlantic flight expedition. The energy, efficiency, and courage shown by you contributed to the accomplishment of the first Trans-Atlantic flight, which feat has brought honor to the American Navy and the entire American Nation...."

On 23 May, 1930, President Herbert Hoover presented Stone and the other members of the NC-4 crew with gold medals, especially designed to commemorate the NC-4 flight, in the name of the United States Congress.

1920 -- The First Coast Guard Air Station -- Morehead City, NC:

The Coast Guard was transferred from the Navy back to the Treasury Department on 28 August 1919. Coast Guard Captain Stanley V. Parker who had been the Commanding Officer of the Naval Air station Rockaway, New York was ordered to Headquarters and assigned as the Aide for Aviation. With the war over Parker turned Coast Guard attention back to the utilization of aircraft in the saving of life and property along the coastal regions of the United States and at sea contiguous to them. The new Commandant, William Edward Reynolds, was favorably disposed toward the establishment of a Coast Guard air station to thoroughly evaluate the concept. The authority to establish Coast Guard air stations was contained in the Navy Deficiency Act of 1916. In spite of the shortage of Officers in the Coast Guard Captain William P. Wishar, 1st Lieutenant Carl C von Paulsen, and 1st Lieutenant. Edward P. Palmer were assigned to the first post-war Navy flight class at Pensacola. Palmer was found to have an eye defect which disqualified him from flight training but he continued on in aviation engineering training. Parker, qualified in both fixed wing and dirigibles, as he recognized the possibility that both types of aircraft might be advantageous in Coast Guard operations. When Wishar and von Paulsen completed fixed wing seaplane training in May of 1920 and received their Naval Aviator designation, they remained at Pensacola to take lighter-than-air training.

On March 30, 1920, Headquarters initiated a sequential listing of Coast Guard aviators. The initial listing was made up of Coast Guard Officers assigned to flight duty at the time. Stone was designated Coast Guard Aviator #1, Donohue was designated #2, Thrun became #3, Sugden was reassigned to aviation duty in April and became #4. When Wishar and von Paulsen completed flight training they were designated Coast Guard Aviators #5 and #6. At this point designation numbers were given to all other Coast Guard officers who held Naval designations. Thus Parker, Coffin, and Eaton became Coast Guard Aviators #7,#8,and #9. No more designations were issued until enlisted pilots Walter Anderson and Leonard Melka, from the original class of 1916, were commissioned. They were designated #10 and #11.

On 5 June 1920, the military ranks prescribed for the Navy became effective for the Coast Guard thereby eliminating a great deal of confusion. Coast Guard Captains became Lieutenant Commanders, 1st Lieutenants became Lieutenants, 2nd Lieutenants became Lieutenant (junior grade), and 3rd Lieutenants became Ensigns.

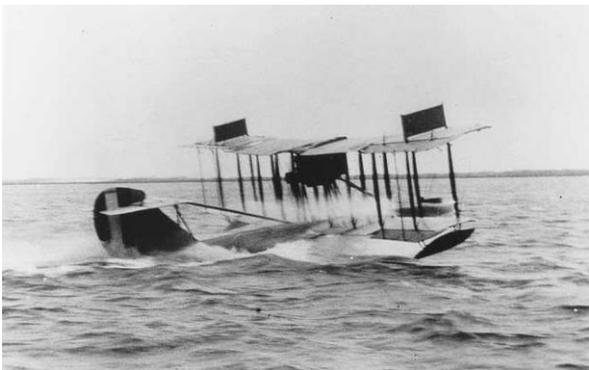


Inquiries were made to the Navy as to the availability of surplus aircraft and naval installations that could be used for the establishment of a Coast Guard Air Station. The Coast Guard was given the choice of two locations. One was at Key West, Florida and the other at Morehead City, North Carolina. LCDR Parker informed LCDR Wishar that he would be assigned as the Commanding Officer of the Coast Guard's first air station upon completion of the lighter-than-air training and he requested his views on the most desirable location. Wishar recommended Morehead City as "best suited to prove the worth of Coast Guard aviation. It was closer to the Graveyard of the Atlantic at Cape Hatteras, where there would be more opportunities to locate vessels

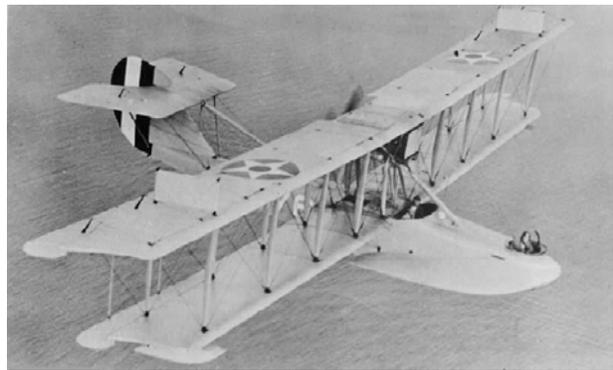
in distress, derelict menaces to navigation, and vessels ashore on Diamond Shoals, Lookout Shoals, and Frying Pan Shoals.” Parker informed the Navy that the Coast Guard had chosen Morehead City. The request for aircraft was also honored and six HS-2L Curtiss flying boats were provided.

LCDR Sugden, Parkers Executive Officer at the Rockaway Naval Air Station was assigned temporary duty as Commanding Officer during the period the Morehead City Air Station was being outfitted. LCDR Stone was given the responsibility of supervising the reconditioning and testing the HS-2L flying boats that were to be used by the station. In November the Navy requested Stones services in connection with aircraft catapult tests and development. Headquarters approved the request and Stone reported to the Aircraft division of the Navy Bureau of Construction and Repair on 20 November, 1920, for duty. LCDR Wishar, reported in to Morehead City in January 1921 and relieved Sugden. Von Paulsen reported in about the same time. The others assigned were LCDR Robert Donohue, Executive Officer; LT Edward Palmer, Engineering Officer; Gunner C.T. Thrun, Pilot; Machinists W.S. Anderson, Assistant Engineer and Pilot, Carpenter Theodore Tobiason, in charge of aircraft work: Chief Petty Officer Leonard Melka, Pilot; and 16 additional enlisted personnel to maintain the aircraft.

LCDR Wishar described the HS-2L as follows: “It was a heavy plane; single engine (Liberty), pusher-type, open cockpit. It was staunchly built, could land in a fairly heavy sea when emergency demanded, and could take off in a moderate sea. It took off at a speed of 48 knots and flew at 55 knots, a leeway of 7 knots between flying speed and stalling speed. If she stalled, she went into a spin. No flyer that I've heard of ever pulled a fully manned and equipped HS-2L out of a spin. Everyone that spun crashed, killing all on board. It had to be constantly "flown" while in the air. It carried a pilot, co-pilot, and in the bomber's seat in the bow a combination observer and radio man. It was tiring to fly: constant pressure had to be maintained on the rudder-bar because of torque of the single propeller. I've come in from many a flight, and, upon landing, my right instep would be so painful it was difficult to walk.



HS-2L coming up on the step

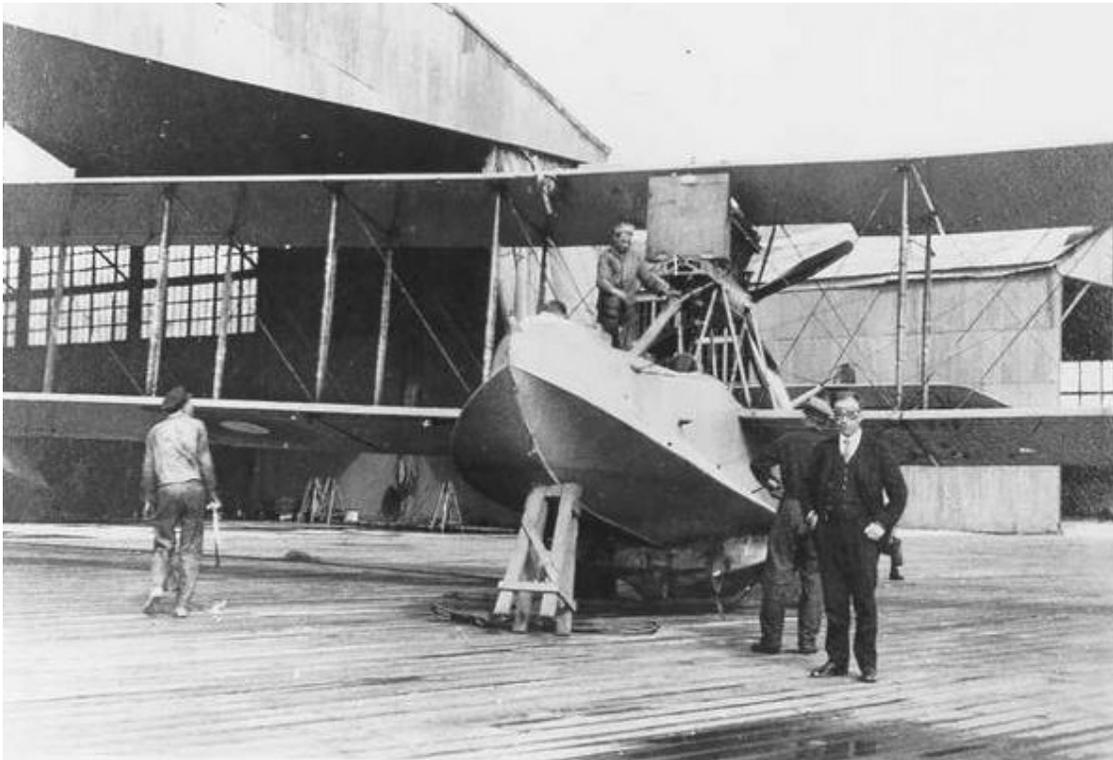


HS-2L on patrol

To prevent this the Navy developed a heavy rubber cord attached to the left end of the rudder bar, thence to the rear for about three feet where the end was secured. It was adjusted to equal the pressure needed on the other side of the rudder bar, while flying, to keep the plane straight. It was called a "Bungee." In a way, it was dangerous because, when the engine was cut for a

landing glide, prop torque ceased, the bungee caused left rudder, the plane turned without banking, was difficult to control, and would tend to go into a spin. The pilot had to remember this and press against the bungee's pull on the rudder when he had cut his engine. Some pilots forgot. They never had a chance to forget again”.

LT Robert Donohue was an exception and believed an H boat could be brought out of spin. He stripped a HS-2L of all removable gear and took off with a light fuel load and only himself in the airplane. No preparations had been made for rescue in case of a crash because LCDR Wishner was not aware of what was intended. Wishar first found out as Donohue started his climb out and hastily prepared for what he thought was a certainty. Upon reaching 3500 feet Donohue put the aircraft into a spin and made four complete turns, then smoothly brought the aircraft out of the spin and landed just off the station. He had proved a HS-2L flying boat could be brought out of spin. Wishnar said it was either a court-martial for risking the plane and his life or a recommendation for a medal for bravery beyond the call of duty. It must have been the latter because Donohue retired as a Rear Admiral.



Aircraft maintenance – on the ramp at the Morehead City air station

Upon establishment of the air station a Headquarters directed assigned duties and responsibilities in order of priority:

1. Saving life in costal regions and adjacent waters
2. Saving property in coastal and adjacent waters.
3. Enforcement of laws and assisting federal and state officials engaged therein.

4. Transportation of officials to remote areas to remote areas or if time precluded the use other means.
5. Assisting fishermen by spotting schools of fish.
6. Surveying and mapping.

The HS-2L fell far short of the aircraft that would follow. Range was a limitation and as a result gasoline and oil were stored in drums at strategic locations in the operating area. Engine failures happened regularly. Wishar stated that he had three while the air station was in operation. Space to carry a rescued or ill person was very limited. But the ability to patrol and fly from bays and inlets and in some cases the open seas was demonstrated. In a summary of activities, Commodore W.E. Reynolds, the Commandant of the Coast Guard reported to the Secretary of the Treasury that:

“The application of aviation to the uses of the Coast Guard in the direction of saving life and property from the perils of the sea, in locating floating derelicts along our coasts, and rendering other kindred services, can now be regarded as an assured proposition. A Coast Guard aviation station has been established at Morehead City, N.C. at practically no expense to the government. The aircraft in use are the Navy H-S flying boats and the station is conducting experiments with the view of furthering the effectiveness of aircraft to life and property saving purposes. It is earnestly recommended that the Congress give its support to the development of this activity for Coast Guard purposes.”

The air station continued to prove its worth but there was no appropriation for continued operation forthcoming from Congress. The Morehead City air station remained in commission until July, 1922 at which time personnel were transferred to other assignments and the aircraft were returned to the Navy.

With the closing of the Morehead City air station morale was low in the aviation community but another misfortune had affected the morale of the entire officer corps. During World War I and the immediate post war years while still a part of the Navy, Coast Guard officers had received temporary promotions commensurate to their assignments and responsibilities. The Captain Commandant was promoted to the Rank of Commodore USN and others had been promoted to Captain, Commanders and Lieutenant Commanders. They fit well within the Navy rank structure but when the Coast Guard reverted to its pre-war rank structure the rank distribution was exceedingly top heavy. For example there were 154 Coast Guard Officers holding the rank of Lieutenant Commander out of a total authorized strength of 268 officers. On 17 October, 1921, all Coast Guard officers reverted to their permanent rank. The Navy rank terminology was retained but all but 36 of the Lieutenant Commanders reverted to Lieutenant or Lieutenant (junior grade). Obviously the large reduction in rank had a detrimental effect on the procurement of new officers. There were vacancies in the grade of Ensign for 65 officers.

The situation was improved when the “Act to distribute the commissioned line and engineering officers of the Coast Guard in grades, and for other purposes” was enacted in January of 1923. The title of the Captain Commandant was changed to Commandant with a rank of Rear Admiral (lower half) and authorized the promotion of 11 senior officers to the rank of Captain. Maximum numbers for lower ranks were adjusted accordingly. Most importantly, a provision was made for promotions at regular intervals and the adjustments made at regular intervals. Maximum numbers in grade would also to be adjusted to changes in the authorized number of Coast Guard officers and pay and allowances were that of naval officers. This gave the young Coast Guard officer about the same opportunity for promotion as his opposite number in the Navy and did much to improve the morale in the officer corps.

1926 – The First Permanent Coast Guard Air Stations Established:

Prohibition of the manufacture, importing, transportation and selling of alcoholic beverages had become the law of the land on January 16, 1920. Enforcement of the law fell to the Treasury Department and as part of the Treasury Department the Coast Guard was tasked with the interdiction of maritime smuggling. There was a gradual increase in the anti-smuggling efforts on the part of the Coast Guard while remaining at 1920 force levels. Smuggling increased exponentially and Treasury Secretary Andrew Mellon, in his 1923 annual report, recommended the service be enlarged considerably to effectively combat the illegal distribution of alcohol. In April 1924, Congress appropriated \$12,194,900 to prepare 20 surplus reserve fleet Navy Destroyers for use by the Coast Guard and build 223 cabin cruisers and 100 small boats. In addition the authorized number of personnel was nearly doubled.



Coast Guard Destroyer Tucker



75 foot Patrol Boat – Known as “six bitters”

The destroyers were reconditioned and the last was on line by the summer of 1925. During the same period the construction of the authorized small patrol boats proceeded. The largest of these were 75 foot in length, had a sturdy wooden hull, were powered with gasoline engines driving

them at 13.5 knots and had an enclosed cabin providing adequate quarters for their eight man crew. They mounted a 1-pounder and a .30 caliber machine gun. There were 203 of these boats (known as six-bitters) built and all were on line by mid 1925. The destroyers worked in concert with two 75 footers. The smugglers, known as blacks, had begun to cruise outside the three mile limit of jurisdiction and unload to fast smaller craft for the run to the shore. The destroyer would locate a black and the 75 footers would picket the vessel. The object was to keep the smuggler from off-loading the cargo to the smaller craft and if accomplished to intercept and apprehend the smaller craft before or as it reached shore.

Air Station Gloucester –Ten Pound Island

The 75 foot patrol boats operated from bases up and down the coast. LCDR Carl Von Paulsen, an aviator, was the commanding officer of Section Base #7 located Gloucester, Massachusetts. The Gloucester patrol area included the shore line, harbors and bays from Marblehead, Massachusetts to Portland Maine not neglecting the rendezvous locations of the ships offshore. LCDR Paulsen approached LCDR Stephen S. Yeandle, aide to Commandant Billard, with the idea of utilizing aircraft to search and locate both blacks and small boats making a run for shore. LCDR Yeandle thought the concept had merit and approached the Commandant who approved the idea but no funds were available. A Navy surplus UO-1 was located and an agreement was made for the Coast Guard to utilize it for a period of a year. It initially flew out of the Naval Reserve Air Station at Squantum Massachusetts and then operated out of a makeshift tent-hangar located on Ten Pound Island in Gloucester Harbor.

The first use of an aircraft to chase a rum-runner was on 20 June 1925. The UO-1 assisted in the first capture of a rum runner with aviation support on 24 June 1925. Von Paulsen and veteran aviator Leonard Melka flew many thousands of miles on patrol during the first year locating smugglers from the air and directing the patrol boats to them. The experience obtained from operating this single airplane convinced Headquarters of the advantages derived from the use of aircraft in Coast Guard work and it was decided to establish a permanent air station and procure appropriate aircraft.

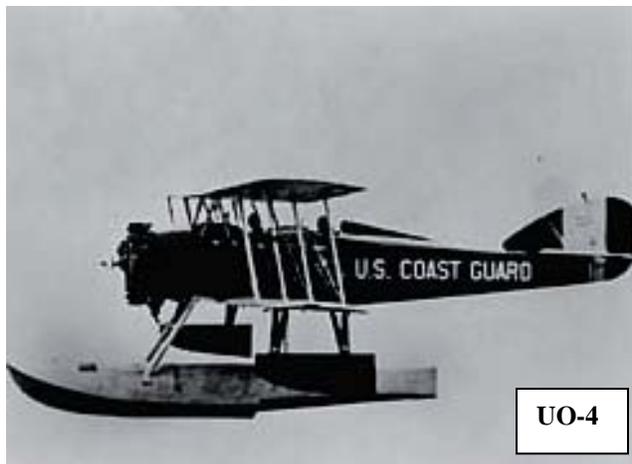


The Coast Guard Commandant, Admiral Billard, obtained an appropriation of \$162,000 for the purchase of five aircraft specifically designed for the Coast Guard. Three were modified Loening OL-5 amphibians with strengthened hulls for rough water landings and larger fuel tanks providing increased fuel for extended law enforcement patrols. They had a large center float faired into the fuselage with wheels arranged so that they could be swung clear when operating from the water. A bi-plane, it had stabilizing floats located at the ends of the lower wing The wing span was 45 feet and the aircraft length was 35 feet. They had 400hp inverted Liberty engines with a top speed of 120mph and a range of 450 miles at a cruising speed of 75mph.

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Maximum gross weight was 5471 pounds and the service ceiling was 12,750 feet. In addition to a pilot and an observer the OL-5 could carry one passenger. They cost \$32,710 each and were given the numbers CG 1, CG-2, and CG-3.

Two of the aircraft purchased were modified Vought UO-1 seaplanes designated as UO-4s. These aircraft, were equipped with the new 220hp Wright J-5C Whirlwind engine and were fitted with the improved UO-3/FU-1 wings. The UO-4 was a bi-plane with a 34 foot 4 inch wingspan and a length of 28 feet 5 inches. They had a top speed of 122mph and a range of 365 miles at a cruise speed of 90mph. A center float was attached to the fuselage and small floats were attached at the ends of the lower wings for stabilization. The gross weight was 2779 pounds with a service ceiling of 14,900 feet. It carried a crew of two. They cost \$18,000 each and were given the numbers CG-4, and CG-5.



During the summer of 1926 after blasting, leveling and concrete pouring, a large steel hangar was erected. The first OL-5 aircraft arrived at Ten Pound Island on 14 October 1926, The second OL-5 was assigned to a to new air station that was opened at Cape May N.J. The Third OL-5 arrived at Ten Pound Island on 3 November 1926. The two UO-4s arrived in December of 1926. One of these was assigned to Cape May.

The Coast Guard went on the offensive and the three mile limit was effectively extended by means of agreements with other nations. Faced with a well organized international smuggling syndicate, knowledge of operational practices and the plans of the smugglers were invaluable. A Coast Guard Intelligence Office was established at Headquarters to facilitate the gathering, evaluating and dissemination of information. The radio played a very important part in gathering intelligence information and was utilized by both sides. A Field Intelligence Unit was established under the direction of Lt. Frank Meal and work began on high frequency radio receivers and high frequency radio direction finders to be placed on ships and patrol boats. This not only enabled the interception of radio traffic for intelligence gathering but provided an excellent control net which greatly enhanced the operational effectiveness of Coast Guard activities. This was further enhanced by the development of aircraft radio communications equipment capable of a voice communication range of 150 miles and a CW range of 1200 miles. Radio Electrician A. G. Descoteaux, USCG, stationed at Coast Guard Air Station Gloucester, conceived and developed this idea. He constructed and installed radio equipment in the station aircraft. The system was designed for battery operation completely independent of the aircraft's regular electrical system. It provided two-way continuous wave telegraph and high-quality voice communication. It was the basis for later Coast Guard aircraft equipment. The work of Descoteaux and C. T. Solt of the Communications Section of USCG HQ resulted in the use of the first loop type radio direction finder.



OL-5 Amphibian on the ramp



**L-R LCDR CC Von Paulson, ENS L.W. Melka
May 8, 1927**



OL-5 Showing machine gun and ring mount



Ramp and Hangar Ten Pound Island

Smuggling interdiction continued to be the primary mission of the air station. Daily patrols were flown in aircraft not only capable of radio communication with both surface units and shore stations but with the ability to obtain the bearing of a black making a radio transmission. The OL-5s were armed with machine guns and, at least in one recorded incident, they were used to sink numerous wooden crates of whiskey that were dumped overboard by a rum runner. As rum-row continued to move further off shore and the search area continued to expand, the most effective utilization of the aircraft was to locate a black, notify Coast Guard surface vessels of its location, and to continue to circle over the black until a destroyer or 75 footer arrived on scene to apprehend or commence picket duty.

The station was simultaneously engaged in the saving of life and property. In the first four years of operation there were 212 cases of assistance rendered embracing casualties to vessels, property and persons. Experiments were conducted in which a shot line, strung between poles, was picked up by the aircraft and carried to a vessel in distress. The line was dropped from the plane to the deck of the vessel in distress and a breaches-buoy is run out to the vessel and survivors are brought ashore by this means. It was used when the vessel in distress was too far from shore for the shot line to reach it or the seas were too rough for the launching of a small boat.

In early 1928 the two UO-4s were transferred to Section Base #6, Fort Lauderdale, Florida to combat the smuggling operations in that area. They enjoyed the same success as they had at Gloucester and Cape May. A Coast Guard air station was established at Dinner Key, Miami, Florida in 1932. A JF-2 was assigned to Gloucester and with the advent of the PJ and RD Dolphin flying boats there was no room to expand the Gloucester base. Gloucester was decommissioned and a new air station was established at Salem Massachusetts in 1935.

Air Station Cape May

The Highest consumption of alcohol during prohibition took place in the large metropolitan cities. With its many inlets, points, and coves, the coast of New Jersey stood out as a haven for rum-runners. As a result a line of large vessels took up station off the New Jersey –New York coast and serviced hundreds of contact boats that transported the illegal alcohol to shore. The value of aircraft in locating smugglers and directing an intercept by a surface vessel to picket and prevent the off-loading of contraband had been demonstrated. A location to base the aircraft was sought.

The Navy had established a section base at Cape May, New Jersey in 1917 to provide training, vessel support activities and communication facilities for coastal defense. Military facilities were built along the harbor front. After World War I the base was adapted to accommodate dirigibles. A hangar 700 feet long and over 100 feet tall was built.



Cape May Air Station

In 1924, during the Prohibition era, the Coast Guard established a presence at the base and several cutters were assigned to combat rum-runners operating off the New Jersey Coast. The first aircraft, an OL-5, arrived in October of 1926 and an aviation presence was established. In October of 1930 CDR Von Paulson was assigned to duty as the commanding officer of aviation unit at Cape May. Two pilots had graduated from flight school in 1929 and three more were assigned to flight school in 1930. A Schreck Viking 00-1 seaplane had been purchased and was assigned to

Cape May. The first of the RD-4 Dolphins was delivered to the Coast Guard in 1931. By the end of 1932 the five Fokker PJ flying life boats had been delivered. Three of these aircraft were assigned to Cape May. By 5 December 1933 thirty nine States had ratified the Twenty-first Amendment and by proclamation, issued by the President on that date, Prohibition was ended. The primary flight mission at Cape May had already been evolving into search and rescue activities, storm warnings, derelict location, and medical evacuations. The advantage of locating wreckage from altitude was demonstrated by Ensign W.S. Anderson who assisted the cutter Gresham in locating the wreckage of a dismantled schooner. The aircraft located the wreckage six miles distant from the cutter which had already been engaged in search activities. The aircraft had the advantage of altitude in locating a low profile object. Other search activities in conjunction with cutters proved their value many times over. The Cape May facilities would continue to expand. An aviation school for enlisted personnel was established at Cape May in 1934. The first of the JF-2 "Ducks" arrived at Cape May at the end of 1934.

CDR Stone had become the commanding officer was assigned as the senior member of the trial board for the flying boat aircraft being built by General Aviation Manufacturing Corporation. He



Elmer Stone entering the cockpit of a JF-2 "Duck"

was relieved by LT. Richard L. Burke. Stone established a world speed record for amphibious planes when he piloted Coast Guard JF-2 #167 at a speed of 191.734 miles per hour over a three-kilometer test course on December 20, 1934. LT Burke, utilizing the same aircraft set a speed record of 173.945 miles per hour over a 100 kilometer course with a 500 kilogram load on June 25, 1935. Two days later he set an altitude record of 17,877.243 feet with a 500 kilogram load.

The Cape May air station was decommissioned in 1938 due to lack of funding. However, air patrol detachments were maintained at Cape May until 1941. During World II the Navy upgraded Cape May and used it for training pilots in aircraft carrier operations. The Coast Guard provided search and rescue services. The Navy turned the base over to the Coast Guard after the war and the Coast Guard Receiving Center Cape May opened in 1948. All recruit training functions were

consolidated at Cape May in 1982.

In 1969 a new hangar was built and Coast Guard Air Station Cape May was re-established as a helicopter air station.

1929 – Air Traffic Flight Following Established By USCG:

The great expansion of the Coast Guard incident to anti-smuggling activities during the Prohibition years brought about a major expansion in radio communication capabilities. Prior to that time cutters were equipped with Navy type radio equipment and used Navy frequencies for handling ship-shore traffic. The need developed for a vast and far reaching radio communication service than could be provided by other sources. In addition to traffic generated by the increased number of cutters there was a tremendous amount of traffic to and from the large number of patrol boats. There was also, for the first time, the requirement for aircraft radio communication. Coast Guard aircraft of this period were allocated International Wireless Telegraphy call signs as a means of identification. To take care of this traffic, a shore radio station was established at Rockaway, New York. This station proved highly successful and as a result additional units were established at Nahant, Massachusetts; New London, Connecticut; Cape May, New Jersey; Cape Henry, Virginia; Fernandina, Florida; Fort Lauderdale, Florida; Mobile, Alabama; San Francisco, California; San Pedro, California; Port Angeles, Washington; and Anacortes, Washington.



Coast Guard Radio Station Rockaway



Douglas RD -2 Adhara radio arrangement

While performing law enforcement duties the Coast Guard was simultaneously engaged in search and rescue operations. The radio communications network was of tremendous value in identifying, locating, and directing aid to those in peril on the sea. Beginning in 1929, initial steps were taken to establish a radio communication network for aircraft. Inaugurated along the Atlantic Seaboard, the aim was to keep track of all aircraft using the coastal routes. Aircraft departure and arrival times were given and by means of check times provided when abeam a designated station; aircraft on long distance flights were afforded continual radio observation and contact. With no additional cost to the Government, adequate monitoring of airborne traffic was provided. There was a chain of lifeboat stations along the coast with land line connections. These were depicted on the air-navigation charts. When an accident did occur or help was needed, the nearest Coast Guard station was ready with immediate assistance.

During the first two months of operations, 329 aircraft availed themselves to this service. In 1932 statistics showed that over 1,400 reports by transit aircraft were made up and down the Atlantic Seaboard. As more air stations were established the system was extended to the Gulf and Pacific Coasts. In 1936 the Bureau of Air Commerce began to develop a nation-wide air traffic control system. The Civil Aeronautics Authority came into being in 1938 and began air traffic control operations negating the need for Coast Guard flight following. The Coast Guard radio network, however, continued to expand. Besides broadcast messages the network handled direct traffic between Coast Guard aircraft, cutters, boats, and shore stations.

1932 – The Flying Life Boats:

A Coast Guard Aviation Section had been established at Headquarters under the direction of CDR. Norman B. Hall in 1928. The potential of aviation had been proven and aircraft with increased capabilities were desired. A statement of requirements was presented to aircraft manufacturers:

“An aerial ‘eye’ capable of extended search, radio equipped to maintain constant contact with surface, thus saving hours and possibly days of search; an aerial ambulance capable of a speed of 100 miles per hour, able to land in a rough sea, equipped with hatches large enough to admit of stretcher cases and to be able to take off on rough water; a demolition outfit to effect the destruction of sea derelicts and obstructions to navigation within a few hours after the report of location; a high speed flying patrol for observation, landing and returning with rescued crews of distressed small craft and capable of taking aboard fifteen or more passengers from distressed craft and standing by for lengthy periods on the surface, maintaining in the meantime radio communication with surface craft until transfer can be made of its passengers”

In 1931 a Schreck/Viking 00-1 built by the Hydravions Schreck-FBA Company was obtained and evaluated. The Viking Flying Boat Company of New Haven Connecticut acquired manufacturing rights to build this aircraft in the United States. Although this aircraft did not fully meet the criteria as a “flying lifeboat”, the Coast Guard, based on this evaluation ordered five additional Viking OO-1s in 1936. During the same period an evaluation of a flying boat designed and built by Donald Douglas took place. This aircraft, a pure seaplane, was originally intended as a luxurious air-yacht. From this aircraft a line of amphibians were developed. The Coast Guard purchased the modified prototype and two other Dolphins during 1932. The Coast Guard purchased ten additional Dolphin amphibians in 1934. LCDR Elmer Stone became the Inspector of Naval Aircraft at the Douglas Aircraft Company in 1934.

In 1932, five flying boats manufactured specifically for the Coast Guard were obtained. They were a result of a design competition involving eight different companies. Known as FLBs, they were a Fokker design and built by General Aviation Corporation. Later when General Aviation became North American, the PJ-1/2 designation was adopted.

General Aviation FLB – PJ-1/2

The General Aviation flying boat, known by Coast Guard aviators as a FLB, was the result of design competition to provide an aircraft to meet specific Coast Guard needs. These aircraft, like the RD Dolphins were numbered and were also named for stars; the name appearing on each side of the nose. Each aircraft was allocated an International Wireless Telegraphy call sign as a means of identification. When General Aviation became North American Aviation the designation was changed to PJ-1. The first PJ aircraft, named *Antares* became operational in June of 1932. The next four, *Altair*, *Acrux*, *Acamar*, and *Arcturus* were operational by the end of the year.

The PJs were large airplanes for the day. A seaplane, they were high wing monoplanes with a gross weight of just over 11,000 pounds and a range of 1000 nautical miles. The engines were mounted in a pusher configuration. The *Antares* was completely modified in 1933 and was equipped with P&W 1690 engines installed in a tractor type configuration. The primary function of these aircraft was search and rescue.



Coast Guard PJ-1 Arcturus on the ramp at the Miami air station

Technical information is detailed in the following table:

Manufacturer	General Aviation	Engine	P&W Wasp R 1340
Designation	PJ-1/2	T.O. Power	2 x 400 hp
Type	Seaplane	Top Speed	120 mph
Wing Span	74ft 2in	Fuel Capacity	440 gal
Height	15ft 6in	Range	1000 nm
Length	55ft	Propellers	Ham Std fixed pitch
Wing Area	754 sq ft	Crew	4
Empty Weight	7000 lbs	Passengers	3

Gross Weight	11,200 lbs	Cost	\$73,343
PJ-2 engines – Pratt & Whitney T1D1 Hornet R-1690 2 x 500 hp at T.O. power			

Douglas RD -1/2/4 Dolphin

Three of the 13 RD Dolphins were obtained in 1931/1932. The first was the original Donald Douglas Sinbad that was flight tested and modified for Coast Guard use. This was a seaplane and designated RD. It was named *Procyon*, operational in March 1931, and assigned to the Cape May air station. All of the Dolphins to follow were amphibians. The *Adhara*, Designated RD-2 came on board in July of 1932 and was based out of the Gloucester air station. The *Sirius*, designated RD-1 followed a month later and was based at the Miami air station. These were actually three distinct aircraft each one an improvement over its predecessor. The RD had a top speed of 136 mph, the RD-1 a top speed of 152 mph and the RD-2 a top speed of 162 mph; The power plants differed as did the range. The remaining 10 aircraft were acquired between November 1934 and April 1935. Each of these aircraft was also named for stars. Designated RD-4, these aircraft were all standard production models.



Coast Guard RD- 1 Dolphin

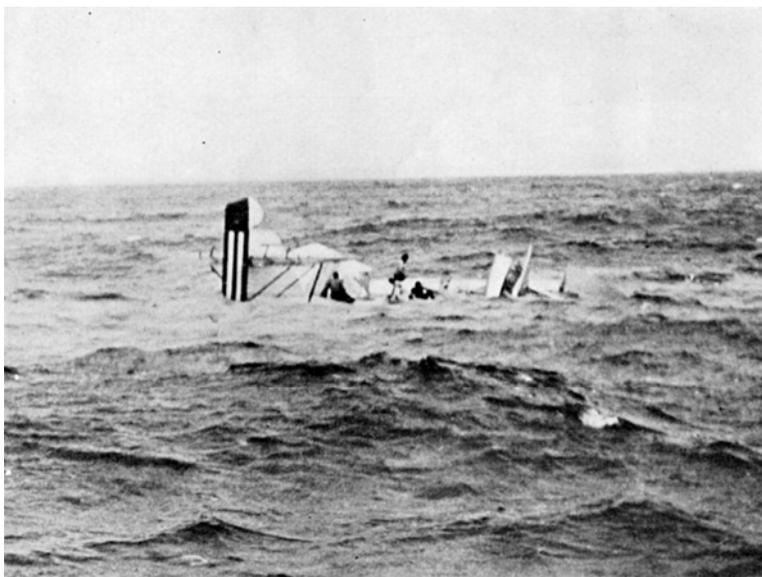
RD-4 Data Table:

Manufacturer	Douglas	Engine	P&W Wasp R-1340
Designation	RD-4 Dolphin	T.O. Power	2 x 454 hp
Type	Amphibian	Top Speed	147 mph
Wing Span	60ft	Cruise Speed	110 mph
Height	14ft 7in	Stall Speed	63 mph
Length	45ft 3in	Fuel	240 gals
Wing Area	592 sq ft	Range	660 nm
Empty Weight	6467 lbs	Crew	3
Max Gross weight	9737 lbs	Passengers	6
Service Ceiling	14,500 ft	Unit Cost	\$60,000



These aircraft were used extensively by the Coast Guard for search and rescue missions often flying far out to sea to rescue stricken mariners or seaman in need of urgent medical care. In the picture on the left, the PJ-1 *Antares* is shown transferring a critically injured seaman from the merchantman SS SAMUEL Q. BROWN. The transfer was

made by small boat using a specially designed stretcher which was placed aboard the aircraft through the forward hatch. This landing and transfer was made under favorable conditions. Many times this was not the case and resulted in a very hazardous undertaking.



The danger in landing an aircraft in the open sea had to be evaluated against the possible loss of life if the rescue was not attempted. Weather and sea conditions were major factors. The vectoring of a surface vessel to assist was preferred if time and availability allowed. In many cases, the urgency of the situation dictated that a landing and subsequent take-off be made.

The photo on the left is of a Hall Boat that crashed on attempted take after picking up a crewmember from the research

ketch ATLANTIS 150 miles off the New Jersey coast.. The crewmember, George Priest, was suffering from severe pneumonia and doctors had requested he be transported to a hospital. Weather was severe with thunderstorms in the area. A landing was made but during take-off the aircraft was struck by an unusually large wave during lift-off and plunged back into the sea. Lt. Clemmer, the pilot; AP-1 Radan, the copilot; and Mr. Priest, the evacuee; were killed. Five crewmembers survived but crewmembers Evers and Hayes suffered broken backs.

The first Distinguished Flying Cross awarded to Coast Guard aviators was awarded by the United States Army to Lieutenant Carl B. Olsen, in recognition of outstanding heroic action in flying an airplane 300 miles to sea under the difficulties of darkness, storms and rough seas for the purpose of removing and transporting to a hospital on shore an officer of the Army, on board the United States Army Transport REPUBLIC who was critically ill with acute appendicitis, saving his life. The second and third Distinguished Flying Crosses were awarded by the Secretary of the Treasury. Lt. Frank Leamy was awarded the Distinguished Flying Cross for the evacuation of a seaman with a severed right arm from the fishing Vessel WHITE CAP. The landing and take off was made at night in heavy seas. Lt. Richard Burke was awarded the Distinguished Flying Cross for successfully removing a critically injured man from the fishing vessel SHAWMUT 160 mile off the Massachusetts coast under extremely difficult conditions.

1932 – Coast Guard Air Station Miami Established:



Dinner Key was originally an island in Biscayne Bay which was connected to the mainland with fill in 1914. In 1917 the Navy chose this site to become a Naval Air Station. The base was commissioned the following year and conducted flight training with 12 seaplanes and a dirigible. The Navy vacated the base after the end of WWI but the seaplane facilities were utilized by commercial operators. The New York, Rio and Buenos Aires Airline began operations

from Dinner Key in 1929. This airline merged with Pan American which initiated an extensive route structure from Dinner Key during the 1930s. Pan Am completed an elaborate passenger terminal building in 1934.

The Coast Guard commissioned an air station at Dinner Key in 1932. This was the first of a series of air stations strategically located in coastal areas to provide search and rescue services as the primary function. The first of the PJ Flying Life Boats were assigned. These aircraft were radio equipped and had radio direction equipment. They could land and take off in the open sea and did so, when the situation dictated, on numerous occasions. It was from Dinner Key that Lt. Olsen flew in the darkness and storm to evacuate a critically ill crewman from the USA Transport REPUBLIC. Wind direction for his take-off was indicated by the ship's searchlight and the *Arcturus* lifted out of the sea in total darkness completing a seven hour mission and saving a life.



PJ-1 FLB Acrux



RD-4 Capella

In 1935 a Labor Day Hurricane with winds of over 150 miles an hour struck the Florida Keys. Lt. Clemmer flew over the Keys prior to the storm reaching them and dropped more than 100 message blocks warning people of the approaching storm. After storm passage all available station aircraft deployed to the ravaged area and commenced an evacuation of those hurt badly. During one flight LT Clemmer took off with sixteen victims on board, the largest number of people ever carried in a FLB, and flew them to Miami for medical attention. Both LT Clemmer and Lt. Olsen continued the operation for several days. Miami was assisted by aircraft from the newly established air station at Saint Petersburg. The operation was well conducted and provided considerable public awareness of the Coast Guard mission. The operation also illustrated the potential and capabilities of aircraft in this type situation.

A considerable increase in Coast Guard Air stations would take place over the next two years. Additional aircraft were being purchased but a temporary aircraft supplement was required at Miami. Two confiscated New Standard NT-2s obtained from US Customs and two former Navy O2Us were based out of a hangar at the 36th Street Airport which was rented from the city. By 1938 the air station had three PH-2 Hall boats and three SOC-4 seagulls on board and the number of SAR related missions had increased significantly.

With the outbreak of World War II, the Coast Guard aviators at Dinner Key flew anti-submarine warfare patrols and convoy support missions. Attacks were made on enemy submarines but no kills were recorded. They did however save many survivors from torpedoed merchant ships by directing surface vessels to the location and landing in the open sea when situations dictated that a landing should be made.. LT. James Schader, while patrolling in a Vought OS2U-3 Kingfisher sighted the remains of the torpedoed tanker



OS2U-3 Kingfisher

GULFSTREAM and observed three groups of survivors. He landed in the water and took the three men in the first group on board. He then taxied to the second group and gave them a life-raft

for support and carried on to the third group; one of which was badly burned. Taking this man on board the already overloaded aircraft he radioed for other Coast Guard aircraft to assist and stood by until help arrived. All survivors were then transported to shore. The Navy also had a VP squadron based out of Dinner Key during the war.

In addition to OS2U aircraft there were PBYS and PBMs and JRFs operated out of Dinner Key. The later three continued to operate from Dinner Key until after the arrival of the UF-1Gs (HU-16) and helicopters in the 1950s. The Search and rescue operation continued to grow. With operations such as the Cuban Boat lift and other added Coast Guard responsibilities it became obvious that Dinner Key was not large enough to support the required aviation activities. In 1965 the air station at Dinner Key was closed and Coast Guard Air Station Miami operations were moved to Opa-Locka, Florida



Air station Miami at Dinner Key just prior to closing in 1965. -- Note the four HU-16s on the ramp area.

1934 – Coast Guard Commences Aerial Border Patrol Operations:

In the early 1930s Prohibition had been the law of the land for over 10 years. The Coast Guard was heavily involved in maritime interdiction and the Customs Service and Border Patrol had the enormous task of combating the smuggling of alcohol, illegal aliens and drugs along 5900 miles of open border. Prohibition was repealed on December 5, 1933 but seven states remained “dry” and the others were allowed local-option. In Texas 242 of the existing 252 counties remained “dry”. Liquor distribution was government controlled and excise and local taxes equated to a little over one-third the purchase cost. Thus liquor smuggling remained extremely profitable and illegal alien and drug smuggling remained unaffected by the repeal of Prohibition.

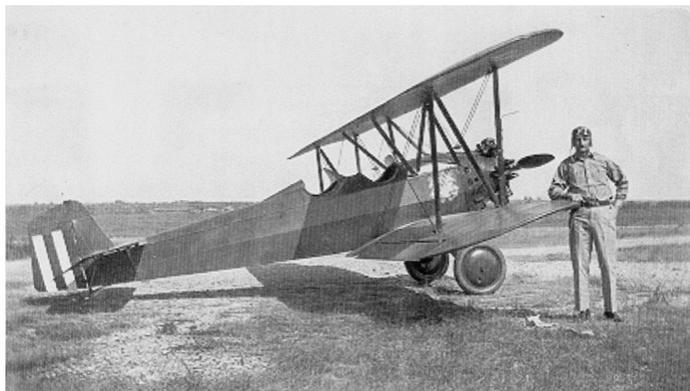


New Standard NT-2 in CG livery

long Custom officials in Texas had created their own ad-hoc “Air Force” composed of a rag-tag collection of confiscated airplanes. No money was provided for their operation and their use was officially discouraged by Washington. But the locals were undaunted and with the assistance of the U.S. Army at Dodd Field, Fort Sam Houston, near San Antonio, Texas, obsolete parts, materials and an old hangar were obtained. That they were able to fly the aircraft at all is amazing; but fly they did and they were extremely effective in stemming major smuggling activities. In fact so effective that Washington could no longer ignore the operation.

Secretary of the Treasury, Henry Morgenthau, who was favorably disposed toward aviation, provided the solution. He directed that all flying activities of the Treasury Department be consolidated under the cognizance of one organization and he determined that to be the US Coast Guard. The Coast Guard had a cadre of trained pilots and maintenance personnel, access to well

On the Mexican border especially, communications were primitive and communities were isolated centers connected by dirt roads and a few railroads through a vast expanse of harsh terrain. Local Border Patrol and Customs officials realized that aircraft flying patrols would be of significant benefit. The problem was that neither agency had aircraft or the money to operate them. The smugglers themselves provided the solution. Some smugglers utilized aircraft to carry out their operations and one by one Customs seized these aircraft. Before



LT. Edge with a Command Aire 5C-3

qualified training programs and was presently engaged in the expansion of its aviation program. No doubt this was a blow to the individuals that had created this special "Air Force" but the blow was mitigated by the induction of four of the Custom pilots into the Coast Guard as Chief Petty Officer Aviation Pilots.

On March 9, 1934 all air operations of the U.S, Customs were transferred to the Coast Guard. Air detachments at Buffalo, New York, San Diego, California and San Antonio, Texas were established to support Custom operations. A unit of five men commanded by Lt. Clarence Edge arrived at Dodd Field shortly thereafter. LT. Elmer Stone commanded the San Diego Detachment which was located in one-half of a commercial hangar located at Lindbergh Field. Available information on the Buffalo Air Detachment is extremely limited.

Transferred to the Coast Guard were 15 additional aircraft seized over the previous few years. Official records are not clear on exactly what these aircraft were, it is believed that in the mix was two Curtiss Falcons, two Curtiss, Robins, a Douglass Mailwing, two New Standards, a pilgrim, a Command-Aire 5C3, a Sikorsky S39 and two Waco 10s. While on paper this would look good in reality most of the aircraft were in extremely poor condition and unsuitable. Eventually all were replaced except for the two New Standards. During 1934-1935 six Vought O2U-2 model aircraft were purchased by the U.S. Navy on behalf of the Coast Guard and four were utilized for the aerial patrol.

At the end of a year operations were transferred to Del Rio Texas. This placed the Detachment on the border within the area of patrol and made the operation much more effective. The Detachment operated from the commercial airfield and relied upon American Airlines facilities and assistance. Coast Guard Headquarters, much to the pleasure of the city of El Paso, ordered the relocation of the Detachment to Biggs Field, Fort Bliss Texas in December of 1936. After an amazing chain of endorsements including the Treasury Department, War Department, Army Eighth Corps Fort Sam Houston, Chief of Staff US Army Signal Corp, and the Commanding Officer of the Air Corps Detachment at Fort Bliss, the Coast Guard Air Patrol took up residence in a small hangar at Biggs Field in February 1937. Biggs Field was able to provide better support and El Paso was in fact more centrally located within the operating area. Working in tandem with the Border Patrol, Coast Guard aircraft patrolled the border looking for smugglers and illegal aliens crossing the border in remote areas. The tendency to raise dust when transiting the terrain made it easier to spot a stray vehicle or groups of people or cattle which would be reported to the Border Patrol for interception. The smuggling of cattle had become lucrative because of an import tax imposed by the U.S. government and an export tax



Transfer of a liter patient to an ambulance

levied by the Mexican Government. For those wishing to avoid paying taxes, the remoteness of the border also made a prime location for hidden stills.

The clear air allowed for easy spotting of other aircraft at great distances. At time the Coast Guard aircraft would spot aircraft coming across the border and force them to land for inspections. The Coast Guard crews carried side-arms and a Thompson sub-machine gun. If signaling did not get the desired response –showing the Thompson usually clarified the message. There were also the more traditional missions that the crews performed such as medical evacuations and searching for people lost in the wilderness.

During March of 1937 the Coast Guard procured three cabin model Waco biplanes designated J2W-1. They were versatile and could be used as a landplane or fitted with floats or skis. They were intended to be put on board cutters and used for operations such as the Bering Sea Patrol. The V-159 was based on the USCG Cutter SPENCER home-ported out of Cordova Alaska during 1937. Eventually the J2Ws were all assigned to the air patrol detachment at El Paso.

At the end of 1939 it was decided to close the El Paso air Detachment. The three J2Ws had been lost to accidents during the year and Officers and men were assigned other units. The San Diego Detachment had become an air station and Buffalo had been closed. The official reason sited for closing the detachment was a decrease in smuggling but in truth world events were overtaking the remote border patrols. The President had invoked the Neutrality Law in September 1939 and the assets were needed elsewhere.

Vought O2U-2 Corsair



Manufactured by Vought aircraft it had a wing span of 34 ft-6 in and a length of 24 ft 6 in. It was powered by a Pratt & Whitney R-1340-88 delivering 450 horse power at take-off. The propeller was standard steel fixed blade It cruised at 90 mph with a top speed of 147 mph. Fuel capacity was 110 gal giving a range of 450 miles. Maximum weight was 3703 pounds and the

O2U-2 had a service ceiling of 20,100 feet. Three were procured in 1934 and three in 1935. One was decommissioned in 1935. Four were surveyed in 1937 and the last was decommissioned in 1940.

WACO J2W-1



Manufactured by Waco aircraft it had a wing span of 35 ft and a length of 25 ft 9 in. It was powered with a Jacobs L-4 R-755 engine developing 225 horse power at take-off. The propeller was a Hamilton Standard –two position. The aircraft cruised at 140 mph

with a top speed of 159 mph. It carried 70 gal of fuel giving a range of 600 miles. It had a crew of two and carried three passengers. Maximum weight was 3350 pounds and it had a service ceiling of 16,000 ft. Three were procured in 1937. All were lost to crashes in 1939

1934 – Coast Guard Obtains the Grumman JF-2 Duck:



The Grover Loening formed his own company in 1928 when the original Loening Aeronautical Engineering Corporation combined with Curtiss-Wright. Grover submitted plans for a privately developed XO2L-1 amphibian to the Navy and requested evaluation. This amphibian retained many of the Loening OLs features but presented them in a more streamlined design. It was received well but Grover Loening did not have adequate facilities for production. Following the Curtiss Wright take-over a talented group of Loening employees that included Leroy Grumman and Albert Loening left and formed the Grumman Aircraft Engineering Corporation. Grumman had facilities and at the Navy's suggestion began redesign work on the XO2L-1 with the idea of producing the amphibian.

In 1931 the Navy reassigned the aircraft designator "J" from transport aircraft to designate a new type of utility aircraft. In the Navy system, in effect at the time, the Manufacturer was also designated with a letter. Grumman became "F." The reason for the selection of the letter "F" to represent Grumman is vague but most probably it reflected the fact that there are only 26 letters in the alphabet, "G" was taken by Goodyear, "F" was not in use at the time, and therefore "F" was selected. Thus the XO2L became the XJF-1. The 1 designated the first configuration. At a later date, when significant modifications had been made to in effect make the aircraft the second in a line of utility amphibians manufactured by Grumman the designation became J2F- followed by the configuration number. The XJF-1 was a compact, single bay biplane with a crew of two, seated in tandem under a fully enclosed canopy. It was powered by a Pratt & Whitney R-1830-62 fourteen cylinder air-cooled engine that drove a three-blade Hamilton Standard propeller. It carried a 100 pound bomb under each lower wing and a .30 caliber machine gun operated from the rear cockpit. The JF-1 Grumman was ordered into production in 1934. The navy issued a contract for 27 JF-1s. While the provision for armament was retained, the armament itself was usually deleted and a third position was added for a radio operator. Named the "Duck", the JF-1 would evolve through six major variants.



JF-2

The JF-2 was built in 1934-35 as an unarmed utility aircraft for the US Coast Guard. JF-2s differed from the JF-1 in that they were powered by a 700hp Wright R-1820-102 nine cylinder engine with a narrow chord cowling. Externally, the JF-2s were easily identified by the radio direction finder loop antenna installed on the fuselage spine behind the canopy and the lack of arresting gear. There were 15 JF-2s obtained by the Coast Guard. The JF-2s served ashore at air stations and were carried on board Coast Guard cutters designed to carry aircraft. They were utilized on Bering Sea patrols and on board cutters participating in the Greenland Patrol. Elmer Stone and Richard Burke took advantage of the amphibian's excellent performance to establish

three new world records for amphibians. One JF-2 was traded to the Marine Corps for a Lockheed R30-1 executive transport and at the beginning of WWII four were traded to the Navy in exchange for four Naval Aircraft Factory N3N-3s that were used for preliminary flight training at the Charleston air station.

During WWII, ten Navy J2F-5/6s were assigned for Coast Guard use. The final mission for the “Duck” in Coast Guard or Navy service came in 1946 and 1947. A J2F-6, assigned to the Coast Guard ice-breaker NORTHWIND, participated as part of Navy Task Force 68, an Antarctic Expedition named Operation High Jump. The “Duck” was responsible for making reconnaissance flights over the South Pole region, weather reconnaissance, liaison and supply flights and acting as standby rescue and medical evacuation aircraft. The J2F-6 and the crew of the NORTHWIND, won the praise of the Commander Task Force 68, receiving much of the credit for the success of supporting operations for the scientific programs.

Manufacturer	Grumman	Fuel Capacity	150 gallons
Designation	JF-2	Range	759 miles
Type	Utility Amphibian	Top Speed	176 mph
Wing Span	39 ft.	Cruise Speed	155 mph
Length	34 ft.	Stall Speed	67 mph
Gross Weight	5800 pounds	Engine	775hp Wright R-1820-102
Service Ceiling	18,500 ft	Propeller	Hamilton Standard 3-bladed



JF-2 Grumman “Duck”

1934 – Coast Guard Air Station Biloxi Established:



During 1933 the Coast Guard was looking for a location to establish an Air station that would provide effective life saving and property protection in the upper Gulf of Mexico region. A site on the eastern edge of Biloxi Mississippi, with direct access to Biloxi Bay, was ideal for a seaplane operating area. A team headed by LCDR Carl C. Von Paulsen conferred with the Biloxi City Commission on the subject. The Commission was highly in favor of the proposal and made the six acre Point Cadet Park available. In late September, Mississippi Senator Pat Harrison announced that President Franklin D. Roosevelt had signed a bill authorizing \$290,000 for construction of the air station. Land was cleared, a seawall and ramp were built, the

approaches were dredged and a 120 x 100 steel-framed hangar was constructed. On 5 December 1934 the air station was placed in commission with LT. W.S. Anderson as commanding officer.

The first two aircraft assigned were JF-2 Ducks and a RD-4 Dolphin arrived in February. A PJ-2 was added in 1936. Aerial surveillance, looking for lost or disabled vessels, reporting wrecks and obstructions to navigation, hurricane warnings, and medical evacuations were all part of the stations responsibilities. Much of the commerce on the Gulf coast was at that time involved in commercial fishing; and especially shrimping. There was a large shrimp-boat fleet and packing houses located in Biloxi. In cases of bad weather or when the need arose to contact fishermen for emergencies at home, flights would be made to inform the shrimpers since radios were not in widespread use during this period. Messages were delivered by means of a floatable wooden message block with a long yellow streamer attached. A written message was placed inside the hollowed out message block and dropped from the low and slow aircraft. The larger aircraft also made medical evacuations from ships far out to sea.

The United States entered WWII In December of 1941. For the rest of December and throughout 1942 German submarines were extracting heavy losses on shipping along the East Coast. They also started to enter the Gulf of Mexico concentrating on the Tampa and New Orleans areas. Assets to combat the submarines were minimal. Anti-submarine patrols were begun from Biloxi in December 1941 with a RD-4 Dolphin, a JF-2 Duck, a JRF Goose and two PH Hallboats. None were designed to be equipped with armament or depth charges and jury rigged systems were installed until more sophisticated ordnance attachments became available. The Gulf Sea Frontier was designated in 1942 and areas of responsibilities were assigned. Coast Guard aviation covered the area from Pensacola, Florida to Galveston, Texas. Additional aircraft arrived and a J4F Widgeon detachment was established at Houma, Louisiana and an OS2U detachment operated from a seaplane tender in Barataria Bay, Louisiana.



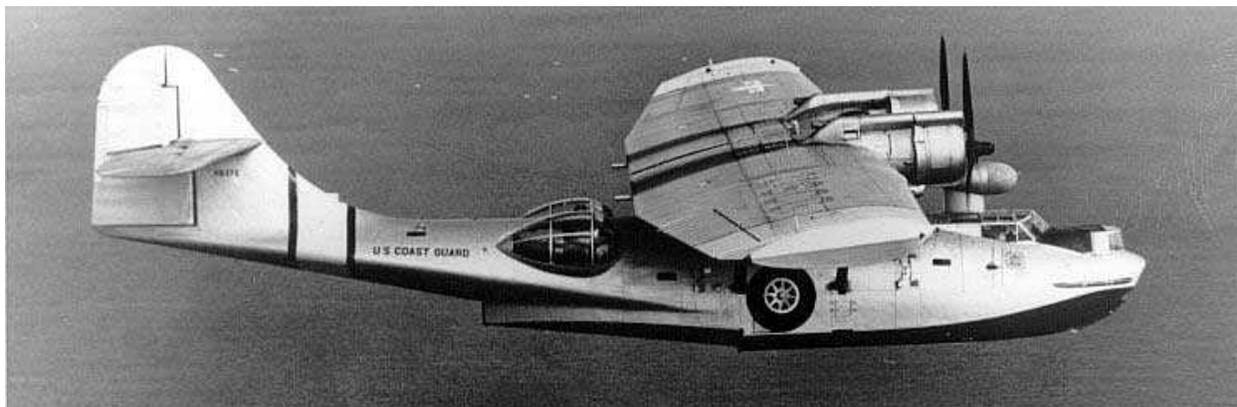
Grumman J4F "Widgeon"

Several attacks were made on submarines in the area and a J4F out of Houma with Chief Aviation Pilot Henry White as the pilot and George Boggs as a crew member was credited with sinking the U-166. A diving expedition in recent times found the remains of the U-166 in a location different from that of the air attack. It coincided with the position of an attack made by a surface vessel several days prior to the J4F attack. It is not known for sure which submarine the air attack was made upon or if any damage was inflicted. Coast Guard aircraft did however regularly rescue crewmen from torpedoed merchant ships. Many times they directed surface vessels to the scene and on other occasions landed in the open sea to make pick-ups.

By the end of 1943 the U-Boat menace had abated. Patrols were still being made by the J4Fs and JRFs but for all practical purposes the air station was back in the search and rescue business. The PBY-5As arrived; the OS2Us had been returned to the Navy; and the RD Dolphins and HallBoats were decommissioned and scrapped. In November 1944 an Air Sea Rescue organization was formed nationwide. The Coast Guard was placed in charge as the control agency with authorization to direct all Armed Forces resources to respond in life saving operations. In addition to the Coast Guard, the Navy and Army Air Force had both aircraft and rescue boats at various locations around the Gulf of Mexico. While any unit would immediately respond to an incident, the Coast Guard Control Center was simultaneously contacted so that all resources could be coordinated and effectively utilized.

The Biloxi air station had been designed for pre-war aircraft capable of operations in relatively shallow water. The post-war aircraft were proving to be larger and heavier than could be safely operated on Biloxi Bay. In March 1947, the air station was placed in care-taker status. Most of the stations assets were transferred to other Coast Guard Air Stations. One of the stations PBY-5A aircraft and crew were established as a detachment at Keesler AFB in Biloxi. The aircraft would be increased to two and in the early 1950s the PBYs were replaced by two UF-1G

Grumman Albatrosses. The Biloxi detachment was closed in 1996 and assets were transferred to the new Mobile Air Station/Training Command.



Coast Guard PB5A with Air Rescue markings

1935 – Coast Guard Air station Salem Established:



In February of 1935 the Coast Guard established a seaplane facility at Salem, Massachusetts because there was no longer space to expand the Ten Pound Island Gloucester air station. Air Station Salem was located at Winter Island, an extension of Salem Neck which juts out into Salem Harbor. The aviation facilities consisted of a single hangar, a paved 250 ft parking apron, and two seaplane ramps leading down into the waters of Salem Harbor. Salem was equipped with, what were at the time, state of the art communications and modern repair facilities. Barracks, administrative and dining facilities and motor pool buildings were also part of the complex.

Search and rescue, hunting for derelicts and medical evacuations were the primary areas of responsibility. During the first year of operation the Salem crews performed 26 medivac missions. They flew in all kinds of weather and the radio direction capabilities of the aircraft were of significant value in locating vessels in distress. Fog, on numerous occasions, complicated the situation. One had to see the vessel and the water surface to land. Lt. P.S Lyons, on one occasion, after obtaining a radio bearing, was unable to see the freighter BLACKHAWK due to fog. He requested the freighter send up clouds of black smoke from her stack. He saw the smoke, set up an intercept course, let down slowly through the fog until he was just above the water surface and proceeded toward the ship. When he saw the ship he landed along side in a heavy swell, took the seaman aboard, then rushed him to a hospital saving the man's life.

Not all of the units work was rescue of course. Duties ranged from counting migratory water fowl for the U.S. Biological Survey to carrying provisions, mail and medical assistance to ice

bound islands during the winter; transporting serum and medical supplies to threatened communities; and the making of aerial maps. Sometimes emergencies drew the aircraft to inland locations. During the big floods in western Pennsylvania, one of the station aircraft based out of Pittsburg and made the first comprehensive survey of the flooded area. Because of this survey the authorities were able to radio broadcast to the populace a complete picture of the state of affairs in the region.

In 1941 air crews from Salem began to fly neutrality patrols along the coast. During World War II the air station roster increased to 37 aircraft. Anti-submarine patrols were flown on a regular basis. In October of 1944 Air Station Salem was officially designated as the first Air Sea Rescue station on the eastern seaboard. The PBM, a hold-over from the war, became the primary rescue aircraft. In the mid 1950s helicopters came as did the Grumman



Grumman JRF-3 on patrol

Albatross amphibians (UFs). Salem Harbor was large enough to provide a seadrome with three sealanes. These offered a good choice of take-off headings regardless of wind direction unless there was a strong steady wind from the east. This produced large waves that swept into the mouth of the harbor making water operations difficult. When the seadrome was too rough returning amphibian aircraft would use Beverly airport.



Coast Guard Air Station Salem

Recognizing that weather conditions could render the seadrome inoperable from time to time and that night operations in Salem Harbor had become hazardous, a sub-unit, Coast Guard Air Detachment Quonset Point, was established at the Naval Air Station Quonset Point, Rhode Island. With a complement of one Albatross amphibian, four pilots, and eight crewmen, Quonset was responsible for supplementing Salem planes during rescue operations and for fixed-wing flying when Salem could not

provide it. The Quonset crews stood a tough port-and-starboard duty schedule of three days on watch and three days off.

Salem Air Station closed in 1970. The Salem and Quonset Point operations moved to Otis Air Force base out on “The Cape” and Coast Guard Air Station Cape Cod was established.

The CGAS Salem property was turned over to the City of Salem in 1972 and the facilities of the former air station have been allowed to slowly deteriorate. The original hangar, barracks and other buildings still stand but are in disrepair. Historic Salem Incorporated has been able to place Winter Island on the endangered list and they hope to be able to restore the old air station which for 35 years played an important role in this seafaring region.

1935 – VIP Executive Transport Purchased:

Air travel for the Commandant and for Secretary of the Treasury Morgenthau, an aviation enthusiast who had a great deal to do with the expansion of Coast Guard aviation, had been provided as needed by the RD-2 Dolphin. Included in the 1935 aircraft purchase was a Northrop RT-1 Delta “Golden Goose” single engine, low wing landplane. It was an executive transport powered by a Wright Cyclone R-1820-F3 with a cruise speed of 200 mph and a service ceiling of 20,000 feet. It was outfitted to carry eight passengers and had a useful range of 1700 miles. The Northrop Delta was initially intended as a commercial transport. However in November of 1934 an amendment to the United States 1926 Air Commerce Act became effective. It required that for transport of passengers at night over terrain not readily permitting emergency landings, the US airlines could use only multi-engine aircraft capable of flying with one engine inoperative. This effectively wiped out any



Northrop RT-1 Delta



Lockheed R30-1 at Glendale California

potential for this aircraft in the commercial market. As a result the Delta was restricted to a small executive market.

A single Lockheed Model B Electra designated R30-1 was acquired as an executive transport, for the Secretary of the Treasury and Commandant of the Coast Guard in March of 1936. It was a 12 passenger multi-engine monoplane powered by two 400 hp Pratt & Whitney Wasp R-985-48 engines. It cruised at 195mph with an effective range of 860 miles. The service ceiling was 21,460 feet. The R-30-1 had been one of two contracted for by the US Navy. On November 26 1935 the Coast Guard received a new Grumman JF-2 Duck from the Grumman factory at New York. It was flown to the Marine Corps Base Quantico, Virginia. This was a trade for the Lockheed R30-1.

1935 -- Coast Guard Air Station St. Petersburg Established:



With the ratification of the Twenty-First Amendment Prohibition was repealed. Once again the primary emphasis of Coast Guard aviation would turn to rendering assistance to those in peril on the sea and its surrounding environment. To provide more effective life saving service along Florida's western coast a decision was made to build a centrally located air station and radio station. Albert Whitted Airport jutting out into Tampa Bay from the southeast section of St. Petersburg was selected. Dredging of Bayboro Harbor produced the landfill that became the airport which had opened during the summer of 1929.

The Coast Guard St. Petersburg Air Station was built during 1934-1935 with Public Works Administration funds on the southwest corner of the airport. The air station consisted of a 100X120 foot steel framed hangar with associated maintenance shops, a wooden seaplane ramp into Bayshore Harbor, concrete aprons and aircraft operating areas, and underground fuel storage areas. Also built were two Spanish-style enlisted barracks, a general maintenance building, a mess hall, administrative offices, a recreation hall and officers' quarters. Adjacent to the air station were the 165 foot Cutter NEMESIS and two 75-



Muster CGAS St. Petersburg

foot patrol boats. A RD-4 Dolphin and two JF-2 Ducks were the initial aircraft assigned. The air station had access to the Albert Whitted runways which enabled landplane operation.

During the years preceding World War II, as Coast Guard aviation continued to expand and additional aircraft were obtained, there were numerous other aircraft types based out of St. Petersburg. These were the 00-1 Viking flying boat, a single engine biplane with open cockpit; the PJ-1 General Aviation flying boat, a high

wing monoplane with pusher engines; and the PH-2 Hall Aluminum Company flying boat, a large biplane whose advantage was a slow water entry speed for open sea landings. Landplane type aircraft assigned at various times were the NT-2 New standard and the O2U-2 Vought Corsair, both single engine biplanes; and the JK-2, a single engine high wing monoplane.

A major search and rescue effort took place shortly after the station was commissioned. The Labor Day Hurricane of 1935 devastated the Florida Keys. Aircraft from St. Petersburg joined those from Air Station Miami flying many missions searching and directing the patrol boats. The settlement of Flamingo had been completely wiped out. The living were rescued and the dead were recovered and taken to Miami.

The air station aircraft and crews flew many searches often working in conjunction with the CGC NEMESIS and the patrol boats, as they aided those in distress. Flights were flown to warn of impending storms. Landings in the open sea to remove injured crewmembers, under less than favorable conditions, took place when the situation warranted it. Navigation aids and hazards to marine shipping were checked and although Prohibition was repealed and alcohol smuggling had decreased significantly the Coast Guard as the air arm of the Treasury flew many flights looking for illegal liquor stills. The Florida moonshiner was a tough old “cracker” who saw no reason why he should not make his own liquor, sell it to whom he chose, and not pay taxes in the process.



Viking 00-1



Fairchild J2K-1

During the first years of World War II the aircraft at the Saint Petersburg air station were part of a valiant but inadequate deterrent to the German submarine campaign. The Coast Guard aircraft were not designed for combat and initially had to be jury rigged in order to carry depth charges. US Naval anti-submarine capabilities left a lot to be desired in both tactics and numbers. During 1942 and part of 1943 the German submarines raised havoc on the east coast of the United States and concentrated on merchant shipping in and out of the Gulf ports of Houston, New Orleans and Tampa. By mid 1942 Coast Guard air stations were equipped with aircraft designed for submarine patrol duty and were supplemented by other units. Coast Guard aircraft rescued and directed surface assistance to numerous seaman from torpedoed vessels during this period. By the end of 1943 the submarine menace had abated. Patrols continued but the primary mission had shifted back to search and rescue operations.

In November 1944 an Air Sea Rescue organization was formed nationwide. The Coast Guard was placed in charge as the control agency with authorization to direct all Armed Forces resources to respond in life saving operations. Along with the Coast Guard, the Navy and Army Air Force had both aircraft and rescue boats at various locations around the Gulf of Mexico. While any unit would immediately respond to an incident, The Coast Guard Control Center was simultaneously contacted so that all resources could be coordinated and effectively utilized.

After the war commercial marine and aircraft traffic continued to increase and pleasure boating operation increased exponentially. So did the Search and Rescue responses at St. Petersburg. All of the old aircraft were gone. The Consolidated PBY-5A Catalina and the Martin PBM Mariner came aboard during the last years of the war and stayed to be the backbone of the postwar search and rescue missions. By the mid 1950s the helicopter, a very efficient life saving machine, was on board replacing a number of the World War II seaplanes. Air Station St. Petersburg flew the large P5M Marlins, the last seaplane the Coast Guard procured. These were replaced in the 1960s by the HU-16s (UFs).



PBM -- JATO assisted take-off from the open sea

During the 1970s a much larger and more modern facility that could accommodate C-130 Hercules aircraft was needed. Assets were moved to Clearwater Airport on the north end of St. Petersburg in October of 1976 and Coast Guard Air Station Clearwater was established. Air Station St. Petersburg was decommissioned 29 October 1976 after more than 41 years of saving lives. The rescues numbered in the thousands, a proud record, but it was not achieved without loss of men and equipment.

1935 – Coast Guard Air station Port Angeles Established:



This patch dates from the 1935 opening of the port Angeles Air station. It is the oldest known Coast Guard patch.

Coast Guard Air Station Port Angeles was commissioned on 1 June 1935. It is located on Ediz Hook, a level sand spit extending from the mainland north and east into the Straits of Juan de Fuca. The location, originally chosen for its strategic defense location, became the first Coast Guard Air station on the Pacific Coast. The first aircraft, a Douglas RD-4 Dolphin amphibian, arrived on 11 June. The air station also had two 75 foot patrol boats assigned. Established to aid in law enforcement and anti smuggling operations, the station almost immediately became involved in what is today its primary mission: protection of life and property at sea.

At the outbreak of World War II, the Air Station had on board a JF-2 Duck, a JRF Goose and a J4F Widgeon. These numbers would increase in 1942 and were supplemented by Curtiss SO3C-1s in the landplane configuration. Port Angeles was given an anti-submarine mission. They patrolled the Straights and off shore areas, escorted convoys and set up detachments at Neah Bay Washington, Quillayute Washington, Astoria Oregon, and North Bend Oregon. During this period a short runway was added to train Navy pilots for carrier landings and the air station expanded to include a gunnery training school.



Coast Guard Air Station Port Angeles -- prior to world War II

In September of 1944 the unit officially became Coast Guard Group Port Angeles and was the headquarters of the Air Rescue System for the Northwest Sea Frontier. The Air Station was also

home of the only Coast Guard Land Rescue Team which proved instrumental in saving lives of many naval pilots who crashed in the mountainous area during the massive training effort during the war.

The first helicopter, a HO3S-1G arrived in 1946, This was replaced by HO4Ss in 1951. The last fixed-wing aircraft to operate from the Port Angeles Air Station was the HU-16E Albatross which left in 1973. Since that time the Air Station has been an all helicopter unit. The HH-52A Seaguard arrived in 1965. The HH-52As were replaced in 1988 by HH-65 Dolphin twin turbine helicopters.



Four UF-1G Grumman Albatross amphibians and three HO4S Sikorsky helicopters on a fly-by at Coast Guard Air Station Port Angeles 21, September 1958. The pictured aircraft had participated in 94 search and rescue cases in the previous two months.

At present, during a typical year, Group Port Angeles units carry out over 400 search and rescue missions, saving 35 lives and assisting over 500 persons. During this period property valued at over \$2 million is saved

1936 – Coast Guard Cutters Designed To Carry Aircraft:



327 Treasury Class Cutter with JF-2 aircraft on board

The aircraft and the cutter were teamed for the first time in 1936 when the first of seven Treasury Class 327 foot cutters was commissioned. A request had been made in 1933 for fast cruising cutters of 300 feet capable of carrying airplanes. Funding was provided under the National Industrial Recovery Act and construction began in 1935. The emphasis on airplane-carrying capability for the 327s was a direct result of the great strides being made in aviation at the time. In the

application for funds to build the ships there was a statement that “certain cutters will require equipment of novel design to undertake rescue and assistance work for aircraft flying the ocean traffic lanes.”

The need for these cutters was three-fold. Air passenger traffic was expanding both at home and overseas and the Coast Guard believed that cutter-based aircraft would prove to be essential for future search and rescue situations on the high seas. Opium smuggling was increasing on the West Coast and freighters from the Orient dropped the drugs far offshore in watertight containers which were picked up by small fast boats for the run to the coast. A large cutter with extensive cruising capabilities carrying its own aircraft was looked upon as a solution. The third reason, which proved to be very productive, was the cutter-aircraft team in Alaska. For many decades following the purchase of Alaska the Coast Guard had enforced territorial law, fishing treaties, provided medical services, and assisted those in distress. The aircraft was able to provide rapid medical evacuations and effectively search vast areas for both rescue activities and law enforcement purposes. A patrolling cutter that had its own aircraft was very effective.



JF-2 being lowered into the water

The 327 foot cutters were capable of carrying Grumman J2Fs, Curtiss SOC-4s, and the specially purchased Waco J2W-1s. The aircraft was lifted to and from the cutter by a large boom supported from the aft goal post. Between 1937 and 1941 all of these aircraft operated from the 327s. Usually, an aircraft would be assigned to a cutter for a number of months. Typical of such duty was the Bearing Sea Patrol and later the surveying of the Greenland coast.

In 1937 the Coast Guard cutter

SPENCER was assigned the Bering Sea Patrol and in addition was to be home-ported out of Cordova, Alaska. LT. C.F Edge had worked with the newly launched 327 foot cutter CAMPBELL to determine maximum sea conditions in which a plane could be launched and recovered. When the evaluation was completed orders were cut to place a JF-2 aboard the cutter SPENCER with Edge assigned as the pilot. In addition he was directed to investigate and determine what could be done with Coast Guard aviation in Alaska, what would be needed to do it, and where to establish an aviation operating base.



J2W-1 secured on the deck of USCGC Spencer

During the patrol aircraft missions varied; the aircraft transported the ships doctor to Kodiak in response to an epidemic of tonsillitis among the kids; it evacuated a badly injured man from a whaling station; there was an acute appendicitis evacuation; and the doctor was flown to many other locations when sick calls from remote areas would come in. The aircraft proved to be especially effective when used with the cutter in searches for overdue trappers and fishermen. The cutter would be a moving base and the aircraft would search the inlets and vast coastlines. In the fall the SPENCER sailed for Seattle for supplies and the JF-2

was exchanged for a Waco J2W-1, a four place, single engine bi-plane which could be converted to a seaplane with twin floats. The Waco, evaluated as a patrol aircraft operating from the SPENCER, had the advantage of having a four place cabin but was not as rugged as the JF-2 and lacked the JF's amphibious capabilities. Frank Erickson followed in 1938 on the cutter HAMILTON using a JF-2 and continued to illustrate the effectiveness of this aircraft.

There were difficulties however. The 327 cutters were originally designed to be equipped with a hangar. This was not to be the case and the weather was rough on the aircraft as it rode in a cradle exposed to snow, ice and salt spray. Even though the control surfaces were secured with padded battens they continuously vibrated in high winds. In protected waters there was little difficulty in putting and aircraft over the side or picking it up but when the ship was anchored in open roadsteads in the Bering Sea there was usually a ground swell causing the ship to roll. This created a problem in keeping the wing tips from hitting the side of the ship as the aircraft was put into or taken out of the water. The last aircraft to operate from a 327 foot cutter was a SOC-4 Seagull on board the DUANE when she made a survey of the west coast of Greenland and looked for potential airfield sites.

At the beginning of World War II German weather stations were operating in the Greenland area providing critical data used by the U-Boats. The weather reports had to be stopped and it would require surface vessels to do so. The United States did not own a single icebreaker to assign to duty in the Greenland waters. Ships had to be adapted until new icebreaking gunboats could be built. The closest thing the Coast Guard had to an icebreaker was the cutter NORTHLAND designed to serve in Alaskan waters. She was modified to carry an aircraft. Another cutter that

saw service in the area, the NORTH STAR, available when the Byrd expedition returned in the spring of 1941, was assigned to the Coast Guard. Her cruising endurance and ability to carry an aircraft made her a useful acquisition. A third cutter with aircraft carrying capabilities was the cutter STORIS which was built in the early part of the war. Shipboard aircraft could not only find enemy stations and provide search and rescue capabilities but in addition helped the ship pick its way through the ice.



J2F – Duck in cradle – Cutter EASTWIND

The wind-class Coast Guard icebreakers were designed specifically as aircraft carrying, ice-breaking gunboats for Greenland duty. Initially these vessel were to have catapult capabilities but since these vessels would operate in ice where hostile forces would be encountered it was deemed necessary to have adequate firepower capability. As a result the ships were completed with two twin 5-inch 38 caliber mounts, three quadruple 40 millimeter guns, and six 20 millimeter installations. The ships also were equipped with depth-charge racks and projectors. There was not room for a catapult and a cradle to carry an amphibian was squeezed

between the stack and the aft 5-inch mount. Four Wind-class cutters were built for the Coast Guard, three of which were transferred to the Soviet Union.

The Coast Guard's ultimate aircraft carrying cutter was to have been a 316 foot cutter designed to have a catapult to launch aircraft. This design evolved into the smaller 255 foot OWASCO class and the provisions to carry aircraft was eliminated. After the war and the return of the wind-class icebreakers from the soviets the ships participated regularly in artic and anartic operations with aircraft on board but these aircraft were helicopters developed during the war and much better suited for the operation. Today all deep-water cutters have the capability to carry and operate helicopters.

1936 – Viking Flying Boat 00-1 Obtained:

During the last three months of 1936 five Viking OO-1 open cockpit seaplanes were obtained from the Viking Flying Boat Company of New Haven, Connecticut. These aircraft were derived from the Schravions Schreck-FBA designed by Louis Schreck. The Coast Guard had previously purchased a seaplane of this type, listed as experimental, directly from the factory in France. It was destroyed by fire in 1934.

The Viking Company initially secured a license to manufacture these aircraft in the United States in late 1929. This was followed by a merger and the manufacturing activities moved to the

Viking Company facilities in New Haven. They intended to reach the wealthy sportsmen along the coastal areas but the economic collapse of the 1930s precluded this. In the mid 1930s the Coast Guard was looking for a small economical utility seaplane and based on previous experience with the original Schravions-Schreck aircraft placed the order for five Viking aircraft powered by a Wright Whirlwind R-760 engine. The difference between the cruise speed of 88mph and the stall speed of 48 mph provided a good margin of safety and a low water entry speed for water operations. The cost was \$6500 per aircraft. They were designated OO-1. The last of these aircraft was decommissioned April of 1941.

Manufacturer	Viking Boat Company	Engine	250 hp Wright Whirlwind R-760
Designation	OO-1	Propeller	2 blade wood-fixed pitch
Type	Seaplane	Fuel Capacity	60 gals
Length	29 ft 4in	Range	390 miles
Wing Span	38 ft 7 in	Max Speed	104 mph
Gross Weight	5900 pounds	Cruise Speed	88 mph



Viking OO-1 Seaplane resting on beaching gear

1937— Coast Guard Air Patrol Station Charleston Established:



Ramp area at Coast Guard Air Station Charleston: Aircraft left to right -- J2K, JF-2, RD-4, JF-2, and JF-2

An aviation training school for pilots and mechanics was established on the banks of the Cooper River on the south end of the Charleston Navy Yard during World War I. It became inactive after the war but remained classified as a Navy Auxiliary Field. In 1934 it was described as having a northwest/southeast sod strip 1680 feet in length and a 1600 foot northeast/southwest sod strip. These were later paved during World War II. Seaplane facilities were also present. The Coast Guard established an air patrol detachment at this location in 1937 with an initial assignment of a Viking OO-1 seaplane.

President Franklin D. Roosevelt issued the first Proclamation of Neutrality on September 5, 1939 declaring in part that any use of United States territorial waters for hostile operations would be regarded as unfriendly, offensive, and in violation of United States neutrality. The Navy initiated action immediately to establish patrol coverage and ordered classified contact reports on foreign men-of-war approaching or leaving the United States East Coast or the eastern boundary of the Caribbean. Ships sighted by the patrols, both air and surface, were to be identified by name, nationality, estimated tonnage, color and markings and were to be photographed whenever possible. On September 6, Commander Atlantic Squadron reported to CNO that the patrol was operating and by the 20th, Atlantic Coastal waters from Nova Scotia Canada to the lesser Antilles were under daily surveillance. Forces involved were primarily patrol planes from seven patrol squadrons totaling 54 aircraft.

The Navy Neutrality Patrol effort was supplemented by Coast Guard surface and aircraft coverage of coastal areas. The Coast Guard Air Patrol facility at Charleston had been upgraded to Air Station status in 1939. VP 52 and VP53 both based in Norfolk patrolled the mid-Atlantic coastal shipping lanes. Experience during the first month of operation dictated changes in the

deployment of forces to improve coverage in the assigned areas. VP 52 was moved to the Coast Guard Air Station at Charleston as a tenant. The Air Station supplied the seaplane ramp, aircraft parking area and aircraft maintenance facilities. Renovations and modifications to existing facilities were made.

VP-52 was composed of 12 P2Y aircraft. Coast Guard Air Station Charleston had six aircraft; three JF-2s, a Coast Guard RD-4 and two J2Ks. VP-52 provided co-pilots for the RD and the J2Ks. The scope of Neutrality Patrol operations gradually expanded. New Squadrons were added and obsolescent aircraft were replaced. VP 52 exchanged its P2Ys for PBY-5s in December of 1940. VP 52 moved from Charleston at that time because the facilities could not support PBY operations.



US Navy P2Y Patrol Plane

In January of 1941 the Coast Guard traded four JF-2s to the Navy for four N3N training aircraft. These aircraft were needed to accelerate Coast Guard pilot training in order to address the acute shortage of pilots. The aircraft were assigned to the Charleston Air Station where initial training, prior to assignment to Pensacola, took place. The former air station duties were assumed by Coast Guard Air Station Elizabeth City which had been commissioned in August of 1940. During 1941 there were 11 Commissioned Officers and 11 Aviation Pilots that were designated Naval Aviators. Upon completion of initial flight training operations during the summer of 1941, Coast Guard Air Station Charleston was decommissioned. Two N3Ns were assigned to Air Station St. Petersburg, one to Air Station Brooklyn, and one to Air Station Elizabeth City.



Coast Guard N3N V-196 -- Designed by the U.S. Navy Bureau of Aeronautics, it was built by the Naval Aircraft Factory (NAF). The NAF was established by the U.S. Navy in 1918 at Philadelphia to provide the Navy with its own manufacturing and test organization. The NAF also built aircraft designed by other manufacturers to evaluate the cost of aircraft submitted by industry. The NAF ended production in 1945. The prototype XN3N-1 first flew in August 1935. It had a wing span of 34 feet and was 25 feet 7 inches long. Powered by a Wright whirlwind 225R-760-2 the aircraft had a sea-level climb of 860 feet per minute and a cruise speed of 76 mph. It was well suited as a primary trainer.

Small PBY and PBM detachments continued to operate from the former air station facilities and Lighter Than Air Squadron ZP-15 maintained a continuous detachment of 2 blimps that flew daily ASW patrols. All aviation activity was discontinued at the end of World War II.

1937 – Coast Guard Air Station San Diego Established:



San Diego Lindbergh Field opened on August 16, 1928. Coast Guard aviation activities in the San Diego, California area began as an Air Patrol Detachment on May 4, 1934 for the purpose of preventing smuggling across the Mexican Border. The Detachment operated from a commercial hangar on the airport. The mission soon expanded to include the saving of life and property. In December of 1935 negotiations between the City of San Diego and the U.S. Government were concluded which provided 23 acres of tideland for the construction of a Coast Guard air station adjacent to Lindbergh Field. This project had the strong support of many people and agencies, and particularly the Harbor Commission the San Diego Municipal Government and the Chamber of Commerce. The

area for this station was deeded to the Coast Guard at no cost after approval by the citizens of San Diego at a municipal election held in April of 1935.

Construction of the Air Station was undertaken in 1936 with funds provided by the Federal Public Works Administration. The M.H. Golden Co. was the contractor. The area was filled and brought up to grade level by dredging from the bay. Long piles were driven in the soil at the building sites for stabilization. The contract called for one hangar with a lean-to, a mess hall, a barracks building, two aprons, a runway to the field, and a small wooden seaplane ramp. During

construction the Air Patrol Detachment continued to operate out of Lindbergh Field. In April of 1937 Coast Guard Air Station San Diego was commissioned.

A RD-4 and an additional JF-2 were the initial station aircraft. Two Hall PH3 seaplanes were added later. The search and rescue mission continued to grow and a JF-2 was deployed on a regular basis to Oakland, California as a sub-unit at the Naval Reserve Base. From there it effectively performed search and rescue operations in the San Francisco Bay area.



View of the Coast Guard Air Station San Diego --1937



JF-2 Duck



Hall PH-2 Patrol Plane

With the declaration of war in 1941 unit aircraft commenced anti-submarine patrols but the threat of Japanese submarines off the Pacific Coast proved to be minimal. The unit continued to watch and report the activities of vessels in the area, to provide assistance in cases of distress, and to provide transportation by air for other government departments. A rapid expansion of military aviation took place during the war which produced an increasing number of offshore crashes, mostly by student pilots, with the inherent loss of life. The Commander of the 11th Naval District became very concerned about the situation. CDR Watson Burton, commanding the San

Diego Air station recommended the formation of a squadron designed for rescue operations. Nine PBY-5A Catalinas were provided and Coast Guard Air-Sea Rescue Squadron 1 was formed in 1943 under the command of CDR. Chester R. Bender. Air Sea Rescue operations became the primary focus from October 1943 on. Between January 1 and December 1, 1944, a total of 124 aircraft went down in waters covered by this squadron. Of the 201 pilots and crewmen involved, 137 were saved, 59 were killed outright by mid-air collisions or impact with the water, two are missing, and three who might have been saved were lost because of improper equipment.



PBY-5A with Air Rescue markings on the ramp San Diego

Air Sea Rescue continued to be the primary mission after the war and the PBYs were replaced by Martin PBM aircraft. A PBM was used by CAPT D.B. MacDiarmid at Air Station San Diego to evaluate techniques and procedures for open sea landings. Landings in the open sea were never safe but his findings made them safer. Helicopters arrived at San Diego in the 1950s and greatly increased rescue capabilities.

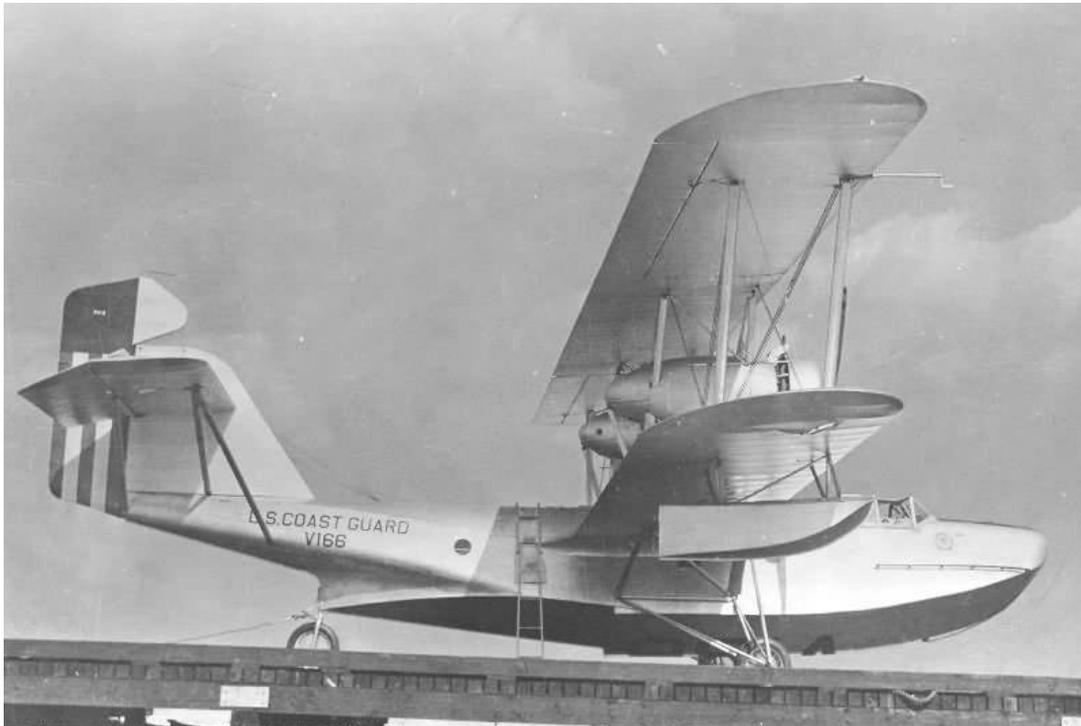
With the expansion of the Coast Guard mission all operational units in the San Diego area were combined into one command called Coast Guard Sector San Diego.

1938 – Coast Guard Purchases Hall PH-1/2 Flying Boats:



The Hall Aluminum Aircraft Corporation produced a prototype flying-boat design in 1929 on a US Navy contract. They subsequently received orders for nine flying-boats which were designated as PH-1. Made largely of aluminum, it was a state of the art aircraft when it first flew. In 1936 the Coast Guard was looking for a replacement for the General Aviation PJ Flying Lifeboats. They approached the Hall Corporation and contracted for seven modified Hall flying boats, designated PH-2. which were delivered in 1938.

The Hall PH-2 aircraft were biplanes with fabric covered aluminum alloy structured wings and tail surfaces. The hull and wing tip floats were aluminum alloy. The hull design was clean and built up around five bulkheads which divided into six watertight compartments. The empennage was large and well up clear of spray providing excellent control in choppy seas. As many as 20 passengers or survivors could be accommodated. The power plants were upgraded to the more powerful supercharged 750 hp Wright Cyclone engine. The propellers were three blade, constant speed CS32D manufactured by Curtiss. With a full fuel load the aircraft could fly for 20 hours at 135 mph. The landing speed was 61 mph. The aircraft was IFR capable with gyro horizons, directional gyros, and rate of climb instruments. The electrical system was compact and complete. The radio equipment installed was modern and included a direction finder and a two way radiophone. A voice amplifying system used to warn people of approaching storms or to relay instructions to ships in distress was also on board. A special beaching gear was utilized which allowed the aircraft to be handled on land and rapidly removed once the aircraft was in the water. Seven additional Hall flying boats, designated PH-3 were ordered in 1939. They differed from the PH-2 in that they were fitted with long-chord NACA engine cowlings and had a more refined cockpit enclosure.



Hall PH-2 On the ramp – note beaching gear

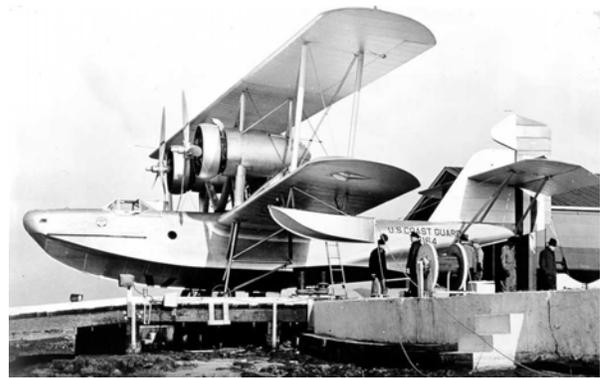
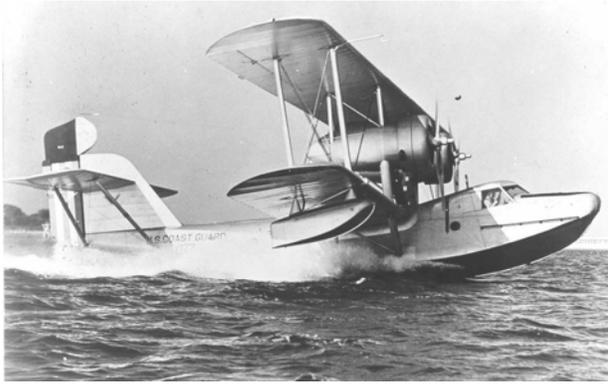
The aircraft was well built and rugged but it was obsolescent. The Engines were mounted between the wings aft of the cockpit and there was some concern that in the event of a hard landing at sea, sufficient force could be developed to tear the engines loose, in which case they would fall forward onto the pilot's compartment. Some also questioned why the PH-2/3 was chosen over the new series of Navy high wing monoplane flying boats. The answer may lie in the fact that the previous Flying Life Boats were a remarkable achievement and were designed for the Coast Guard mission. When replacement was required the manufacturers had either gone out of business or no longer continued to manufacture this type of aircraft. The cost of development and building a few aircraft for a specific mission would have been extremely high. The Coast Guard chose to adapt and upgrade an obsolescent design to meet current needs.

After the Japanese attack on Pearl harbor the Hall flying boats were given the standard Navy finish in place of the aluminum paint configuration. They were pressed into service for anti-submarine patrol. Initially unarmed they were modified by Coast Guard personnel to enable them to carry depth charges. They were utilized extensively to direct surface vessels to survivors of torpedoed ships and on a number of occasion they set down in the sea to make a rescue. Prior to the end of the war they were replaced by PBY and PBM aircraft.

Technical Information Hall PH-2/3

Manufacturer	Hall Aircraft Corporation	Engine	Wright Cyclone F51 R -1820
Type	Patrol Flying Boat	Propeller	Curtiss CS32D
Wing Span	72ft 10in	Fuel	892 gal

Length	51ft	Cruise Speed	137mph
Gross Weight	16,457 pounds	Range	2242 miles
Service Ceiling	21,000 ft	Crew	5



1938 – Coast Guard Air Station Brooklyn Established:



On February 3, 1928, the decision to build a municipal airport to serve New York City was made. Up until this time, New York did not have an airport. The Newark, N. J. Airport was fast becoming the world's busiest airport with most cargo and passengers destined for New York. The site chosen to build the airport upon was Barren Island, a 387 acre marsh with 33 small islands located in Jamaica Bay on the southern tip of Brooklyn. Six million cubic yards of sand were pumped from Jamaica Bay to connect the islands and raise the site to 16 feet above the high tide mark.

The City of New York spared no expense on the field as they were trying to convince the U. S. Postal Service to designate the field an Official Airmail

Terminal. A seaplane base was built on the southern waterfront and sections of Flatbush Avenue were rerouted and widened to create a more direct route for trucking mail to Manhattan. On March 22, 1936, in a crushing blow, the U.S. Postal Service rejected Floyd Bennett Field's application for the Air Terminal. New York City slowly turned its attention to the new LaGuardia Field which was much more convenient than either Newark or Floyd Bennett Field.

On January 22, 1936, Mayor LaGuardia announced that the City of New York had executed a 50 year lease to the U. S. Coast Guard for facilities at the field. The Coast Guard was to occupy 9.7 acres (650 ft. X 650 ft.) on Jamaica Bay and construct a \$250,000 base. On April 23, 1938, The Coast Guard Air Station, Floyd Bennett Field was established.



Mayor LaGuardia (w/ shovel) and Rear Admiral R.R. Waesche, Commandant, USCG (center) at ground breaking ceremonies

From 1938 until the outbreak of war in December of 1941, the primary mission assignment for the Air Station was the preservation of life and property at sea and the adjacent areas. On May 22, 1941, the U. S. Navy leased Floyd Bennett Field from the City of New York. By May 26, all private and commercial flying at the field was discontinued. On June 2, Naval Air Station ,Floyd Bennett Field was commissioned. The airfield complex was expanded in size from 387 acres to 1288 acres by reclaiming additional portions of Barren Island. The Coast Guard aviation unit became known as Coast Guard Air Station Brooklyn. In the early days of World War II,

when the submarine menace was acute and anti-submarine aircraft were unavailable, the existing Coast Guard patrol and utility aircraft attached to the station were armed with depth charges and served well. These aircraft were supplemented by OS2Us during 1942 and 1943. The submarine menace off the East Coast subsided during 1943 but the mission of Coast Guard Air Station Brooklyn was expanded. By a directive from the Chief of Naval Operations, dated November 19, 1943, the station was designated a helicopter training base.



Sikorsky HNS-1

Three Sikorsky HNS helicopters were assigned. Shortly after this the British Admiralty requested that the Coast Guard train a number of pilots and mechanics for them. Four British helicopters were assigned for this purpose. A number of pilots were also trained for the USAAF, the U.S. Navy, and the C.A.A. CDR. Frank A. Erickson was placed in charge of the helicopter training and became Commanding Officer of the Air Station from December 1943 until February 1945. The task of organizing the training

unit was completed on June 1, 1944

Regular production trainers were now available in sufficient quantities to start the training of regular classes. By the end of the first year of operations over one hundred pilots and one hundred and fifty mechanics had been trained to fly and service these aircraft. Over 3000 hours had been flown by the HNS helicopters attached to Air Station Brooklyn.

In addition to training activities there was one mission for which the aircraft was ideally suited. The Brooklyn Navy Yard requested that tests be run to determine the feasibility of using helicopters as targets for radar calibrations of vessels undergoing overhaul in the Navy Yard. The tests proved so successful that the Navy Yard requested of the Chief of Naval Operations that helicopters be assigned for this work on a permanent basis. The trainers were used on several occasions for rescue and relief missions. Blood plasma was flown to the wreckage of the U. S. S. Turner after it exploded in New York harbor; a youngster was rescued from a sandbar in Jamaica Bay and firefighting equipment was dropped to firemen fighting a blaze on a railroad trestle when other means failed to reach the firefighters.

In April 1945 a Canadian PBY-SA was forced down 189 miles south of Goose Bay Labrador. An Air Station Brooklyn HNS helicopter was disassembled, loaded on a C-54 and flown to Goose Bay. When it was reassembled, Lt. August Kleisch, USCG, flew the helicopter to a base camp that had been set up at Lake Herr about 146 miles south of Goose Bay, which could be supplied by ski planes. Kleisch had to make 9 trips into the crash site, each trip averaging an hour and a half, bringing out one man at a time. This rescue mission demonstrated the versatility of the helicopter.



SAR Scramble –PBM-5

The mid-fifties were busy ones. The station operated no less than 18 aircraft of various types in 1956. To facilitate maintenance, a new ramp and new hangar were constructed. The new nose hangar was used primarily for maintenance on the PBM- 5 Martin Mariner and the main hangar for helicopters and other fixed wing aircraft. By the mid-sixties the only aircraft operated by the station were the HU-16E Grumman Albatross and the new HH-52A Sikorsky Seaguard Helicopter. The U. S. Navy at Floyd Bennett Field was quickly shutting down its operations a section at a time. In 1971 the Naval Air Station, New York, was decommissioned and the control tower and runways were closed. The Coast Guard elected to

make the Brooklyn air station an all helicopter unit.

In the 1970's, the air station operated Sikorsky HH-52A and HH-3F. The 1980's saw the retiring of the HH-52A helicopter, making way for the newer HH-65A Dolphin helicopter. Coast Guard

Air Station Brooklyn was decommissioned in May 1998 and its resources transferred to the newly established Group-Air Station Atlantic City, which opened June 8, 1998.

