

Patrol Aviation in the Atlantic in World War II

By Captain Albert L. Raithel, Jr., USN (Ret.)

Patrol aviation in the Atlantic in WW II has been described as "thousands of hours of boredom interspersed with moments of sheer terror."

On 7 December 1941, patrol aviation in the Atlantic was organized under Commander Patrol Wings, U.S. Atlantic Fleet. Five wings were located as follows: Patrol Wing 3, Coco Solo, Canal Zone; Patrol Wings 5, 8 and 9, Norfolk, Va.; and Patrol Wing 7, Argentia, Newfoundland. Twelve Atlantic patrol squadrons were equipped with various models of the Consolidated PBY *Catalina*, with one squadron flying the Martin PBM *Mariner*. An additional squadron was transitioning to the Lockheed PBO *Hudson*.

Atlantic patrol aviation under Atlantic Fleet tasking was heavily engaged in Neutrality Patrol operations over a wide area. Patrols were flown from Iceland, Newfoundland, Bermuda, Puerto Rico, Trinidad and Brazil. Commander Patrol Wing 3 covered both the Caribbean and the Pacific approaches to the Panama Canal. Those few squadrons not flying Neutrality Patrols were

occupied with providing operational training to recent graduates of the flight training programs or in transition training of squadrons reequipping with new aircraft.

In the weeks after Pearl Harbor, Patrol Wing 8 and four PBY squadrons were transferred to the Pacific. For practical purposes, the East Coast of the United States had been stripped of its patrol aviation shield. Following the German and Italian declaration of war against the United States on 11 December 1941, patrol aviation remaining in the Atlantic had its hands full with escort of North Atlantic convoys and stepped-up patrols from the offshore bases.

Very unlike current operations under unified commands supported by extensive worldwide command, control, communications and intelligence systems, antisubmarine air operations up to 150 miles off the East Coast at the time of the initial German submarine offensive were conducted under the operational control of Commander North Atlantic Naval Coastal Frontier, as a task force commander under Com-





U-848 under attack by VB-107 PB4Y-1, 5 November 1943.

80-G-44360

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"MADCAT" PB4Y with magnetic anomaly detection equipment.

80-G-383725

ing and new squadron establishment and workup, patrol aviation was fully engaged in the Battle of the Atlantic. The American patrol aviation forces were only a portion of the much larger mixture of land, sea and air resources involved in what has been termed history's longest, most expensive and most critical naval battle.

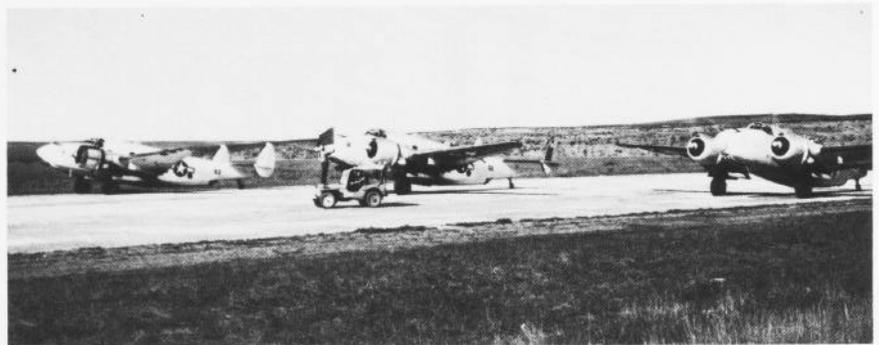
The objective of antisubmarine warfare is to deprive the enemy of the effective use of its submarines. To this end, the recording of submarine losses tells just a small part of the story. Particularly, sightings by aircraft radioed ashore or to surface craft often resulted in numerous attacks by other

mander in Chief, U.S. Fleet. This control was exercised through the commandants of the First, Third, Fourth and Fifth Naval Districts. Forces assigned were those of the Naval Local Defense Forces drawn from air assets of the respective naval district commandants. Control was normally through naval communications facilities at the base of flight origin. Communications between bases and with the Naval Coastal Frontier were very limited. Long-range flight communications utilized high frequency continuous wave, with voice communications limited to short ranges. Very few frequencies were available to each aircraft, and coding was manual through the use of strip ciphers or code books.

The Battle of the Atlantic, from its inception in September 1939 until 8 May 1945, was a battle for the protection of shipping, supply and troop transport waged against the German submarine force, supporting Luftwaffe aircraft and occasional surface ships and Italian submarines. With the exception of those patrol organizations—including Fleet Air Wing 5 after September 1943—in operational or transition train-

PBY on convoy patrol, Gulf Sea Frontier.

80-G-238408



Three PV-1 Venturas awaiting takeoff clearance, NAS Port Lyautey, French Morocco.

80-G-K-5246



surface or air units. In 1942, submarines were ordered to dive when they sighted an aircraft. Consequently, air patrols in the vicinity of surface vessels or convoys often contributed to the submarines' inability to position for an attack, and thus indirectly contributed to the objective.

Through the fall of 1941, most submarine operations in the Atlantic had been conducted against areas of shipping concentration and against convoys to and from Canada and the United Kingdom. Commander Patrol Wing 7 operated as a task group commander under Commander Support Force, Atlantic Fleet. Patrol PBY squadrons VPs 71, 72 and 73, and PBM squadron VP-74 supported convoy operations from Newfoundland and Iceland with primitive facilities and fierce

winter weather conditions. Since operating conditions were becoming impossible for flying boats, a plea was made for land-based aircraft. In order to meet this immediate requirement, the Navy was able to divert 20 lend-lease Lockheed *Hudsons* from those destined for the Royal Air Force. These aircraft, the Navy's first landplane patrol bombers, were designated PBO-1.

Retreating before a determined British offensive in the autumn of 1941, the situation of the German Afrika Korps was critical. Hitler, with no prior warning of Japanese plans for the Pearl Harbor attack, ordered that most submarines be withdrawn from the Atlantic to operate against British shipping in the Mediterranean. Shortly after Germany and Italy declared war against the United States—with Admiral

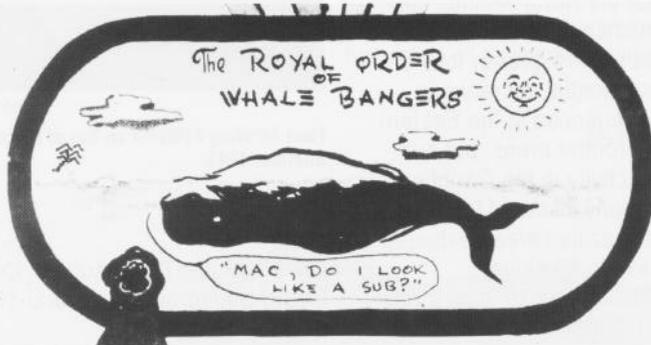
Karl Doenitz as Commander in Chief—U-boats received permission for submarine operations off the East Coast of the United States.

With the departure of Patrol Wing 8 and four PBY squadrons to reinforce the Pacific fleet in mid-December, the North Atlantic Naval Coastal Frontier was left with only a few training squadron PBYs and Coast Guard aircraft and some trainers and carrier aircraft. When the German attacks on East Coast shipping began in January 1942, the Commander in Chief, U.S. Fleet, refused a request for transfer of Atlantic Fleet aircraft to the Naval Coastal Frontiers. In February, permission was granted for fleet aircraft to be used by Coastal Frontier commanders in emergencies only and not for routine patrols. Commander North Atlantic Naval Coastal Frontier also asked for and received operational control of 9 Boeing B-17 heavy bombers, 6 Douglas B-18s and 31 North American B-25 medium bombers from the Army's First Bomber Command. These aircraft carried only demolition bombs and flew only daylight missions, but they flew and fought. Inshore antisubmarine patrols up to 50 miles off the coast were flown by the Coast Guard, Army observation squadrons, trainers and after March 1942 by the Civil Air Patrol in support of Navy tasking. Also in March, a number of Vought OS2U *Kingfisher* aircraft, originally destined for the British, were assigned to inshore patrol squadrons.

Adm. Doenitz named his first mission against the East Coast, Operation Drumbeat. The first sinking occurred 300 miles east of Cape Cod, Mass., on 11 January 1942. The five U-boats which comprised the first group were detected by communications intercept and accurately plotted and reported by U.S. Naval Intelligence in the estimate for 12 January.

Unprepared to conduct antisubmarine warfare and without effective command, control and communications support, the meager surface and air forces available in the North Atlantic Naval Coastal Frontier were unable to cope with the German offensive. During the first quarter of 1942, 60 ships were sunk by U-boats in the area. Remedial action where possible was slow in com-

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All contacts weren't submarines! Medal presented for attacks on targets evaluated as whales.



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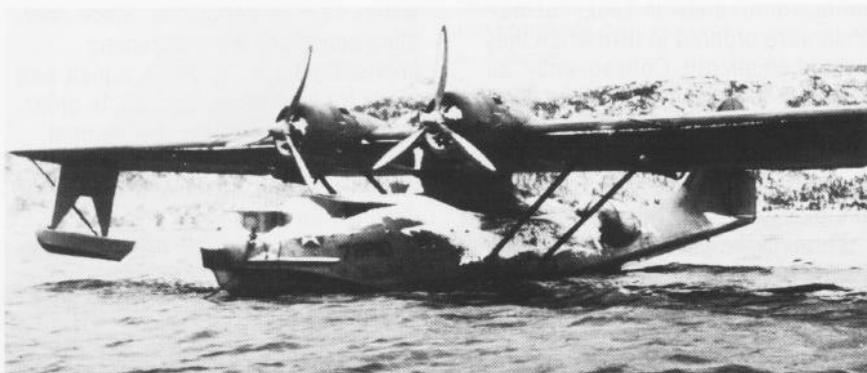
ing. Lights along the coast that silhouetted ships offshore were never blacked out and were only dimmed after strong representation by the Army. Effective antisubmarine search and localization devices were not available, and the only antisubmarine weapon, the depth charge, had limited lethal range.

As the German offensive gradually worked its way south along the coast, detachments of patrol aircraft were established at various points along the coast to enable them to base closer to their patrol areas. With the establishment of coastal convoys and the organization of the Eastern, Gulf, Panama and Caribbean Sea Frontier commands in April 1942, the command and control system for prosecution of antisubmarine warfare in the Atlantic began to take shape. Aircraft production and training programs at this time could not fill the worldwide force requirements, and shipping losses were enormous—154 ships lost in areas covered by American patrol forces, with the loss of only 2 submarines, U-656 and U-503. Both were credited to VP-82 flying the PBO-1 *Hudson*, the first German submarine sinking attributed to United States forces in WW II.

As the pressure of the coastal convoys began to take effect in the second quarter of 1942, the main offensive moved with a vengeance into the Gulf of Mexico and the Caribbean. Whereas the losses during the first quarter were 51 ships, the second quarter losses counted 167 ships in these areas. During the quarter, only VP-74, flying the PBM *Mariner*, scored a kill, sinking U-158.

Additional PBY squadrons came "on line" as fast as they could be trained, but the build-up was painfully slow as the demands of the Pacific Fleet were critical at this time. Deliveries of the PBM-3 to patrol squadrons were subject to production and configuration delays.

A decision in 1920 precluded the Navy from developing land-based patrol aircraft. The Navy's request for these aircraft was not favorably resolved until July 1942. At that time, an agreement with the Army resulted in the release of Consolidated B-24s (PB4Y-1s), North American B-25s (PBJ-1s) and Lockheed B-34s (PV-1s). These

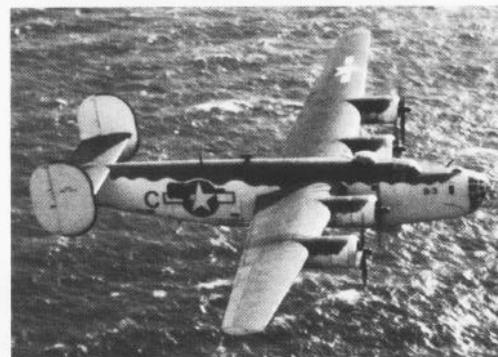


80-G-2133
VP-73 PBY covered with snow, North Atlantic area, December 1941.

additional aircraft were pressed into action as soon as squadrons could be formed and crews trained.

The summer of 1942 saw greatly increased concentration of submarine activity against the North Atlantic convoys and Canadian coastal zone shipping with the third quarter loss of 68 ships. A substantial decrease in losses was experienced in the Eastern and Gulf Sea Frontier areas, but continued strong activity in the Caribbean resulted in quarterly losses of 93 ships. Losses in the Brazilian area continued a small increase to 10 ships.

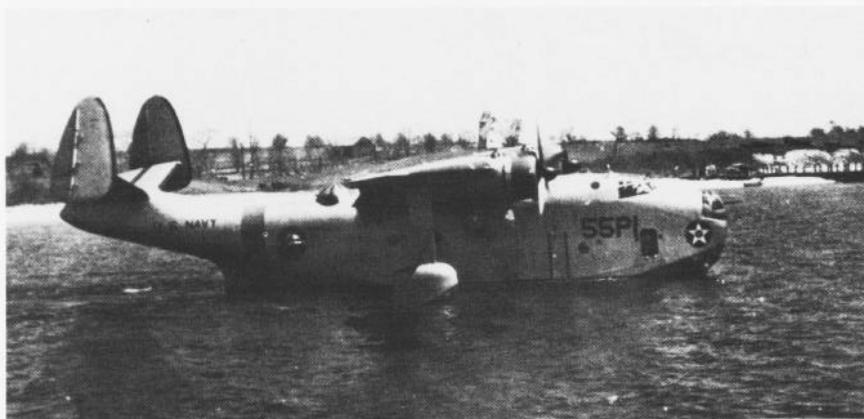
Partially offsetting these losses was the increase in submarine sinkings attributed to American air patrol activity. In July, the Army's 396th Bombardment Squadron sank U-701; VS-59, a Patrol Wing 3 inshore patrol squadron, joined surface units to sink U-153; and VS-9, an Eastern Sea Frontier inshore patrol squadron, joined with a merchant ves-



80-G-K-14059
Fleet Air Wing 7 PB2Y-1 on Bay of Biscay patrol, Summer 1943.

sel to sink U-576. In August, Coast Guard Squadron 212 sank U-166 in the Gulf of Mexico.

In August 1942, Patrol Wing 11 was established at San Juan, P.R., and was assigned to the Caribbean Sea Frontier. In September, Patrol Wing 12 was established at Key West, Fla., assigned to the Gulf Sea Frontier. These commands improved the administrative



NH 93645
The VP-55 commander's aircraft floats offshore in 1941. This was one of the first PBM-1s assigned to the fleet.



80-G-41878

Ltjg. John E. Dryden, USNR, of VP-53, paints U-boat kill symbol on his PBV after sinking U-156.



80-G-63675

Coast Guard Douglas Dolphin rescues survivors of SS Gulfstate, sunk by U-155, April 1942.

and material support for squadron operations in their respective areas. Also in September, Headquarters Squadrons (HEDRONs) were established in each wing to provide for the administration of the wing and attached squadrons. They also accomplished the maintenance and repair of all squadron aircraft by pooling all equipment and spare parts,

and by transfer of ground personnel from squadrons to the HEDRON. Thus, squadrons were composed primarily of flight crews which, being freed of most administrative and maintenance responsibilities, could concentrate on flight operations. HEDRON detachments, called Patrol Service Units, provided maintenance

VP-211 PBM at Rio de Janeiro, Brazil. Note white tropical paint scheme.

NH 94555



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services to deployed wing squadrons and detachments at outlying bases. In October, the inshore patrol squadrons were assigned to the administrative control of the Patrol Wings. Operational control remained with the Sea Frontier commanders.

On 1 November 1942, Patrol Wings were designated Fleet Air Wings as the basic structure for shore-based air and were to be composed of any types of aircraft required by the wing to perform its assigned functions in a peculiar area of operation. As antisubmarine measures became more effective, and as the number of squadrons available provided greater coverage, the effectiveness of submarines in the Caribbean area was sharply reduced. Adm. Doenitz shifted his area of concentration to the north. In the last quarter of 1942, losses mounted in the North Atlantic convoy area to 70 ships and decreased in the Caribbean to 48 ships. Losses mounted to 23 ships in the Brazilian area and to 35 ships in the southeastern Atlantic. There were no losses in the last quarter of 1942 in the Eastern, Gulf or Panama Sea Frontier areas. U-512 was sunk by the Army's 99th Bombardment Squadron, and U-408 by VP-84 in October. U-611 was sunk by VP-84 in December.

The decisive year in the Battle of the Atlantic was 1943. With increased numbers of submarines available, Adm. Doenitz formed large "wolf packs" to operate against the North Atlantic convoys.

VP-83 sank U-164 and U-507 in

January, and the Army's 2nd Antisubmarine Squadron, assigned to Fleet Air Wing 15, sank U-519 in February. In March, U-156 fell prey to VP-53 and U-524 to the Army's 1st Antisubmarine Squadron, also of Fleet Air Wing 15. The second quarter results were even better. In April, VP-83 sank the Italian submarine *Archimede*, while VB-125 sank U-174. May saw the loss of U-657 and U-467 to VP-84. VS-62, a Fleet Air Wing 12 inshore patrol squadron, and a Cuban gunboat joined to kill U-176. VP-74 and surface units sank U-128. June brought the demise of U-388 and U-200, both to VP-84.

The fierce attacks against the convoys reached a climax in the spring of 1943. A number of significant factors contributed to the Allies turning the tide of battle.

Training programs and production lines combined to furnish the well-trained personnel, ships and aircraft required to provide the necessary protection for shipping. Atlantic patrol squadrons had increased in number from 16 in July 1942 to 30 on 1 January 1943. Long-range B-24/PB4Y-1 *Liberators* provided the range to help close the mid-ocean gap, along with the increasingly available Hunter-Killer Groups composed of escort carriers, their air group and accompanying surface escorts. A very important factor was the

availability of 10cm airborne radar, which effectively reduced the ability of U-boats to remain undetected while re-positioning on the surface.

In the face of determined opposition, the Germans were subjected to grievous losses, and on 24 May 1943, Adm. Doenitz withdrew his U-boats from the North Atlantic convoy routes.

In July, a decision was reached to assign all PBMs to the Atlantic Fleet for antisubmarine operations. It was not until December that PBMs would be assigned to the Pacific Fleet. Also in July, two squadrons of PB2Y *Coronado* flying boats were added to the patrol forces, and the first of the acoustic antisubmarine aerial torpedoes (*Fido*) reached the fleet. The build-up of patrol forces was accompanied by more responsive command and control measures, more reliable communications and proven tactics, which were widely disseminated and taught in the various training establishments supporting the fleet.

With the advent of more and better equipment, and additional squadrons to put on task, submarine losses to patrol aviation mounted through the summer. In July, VP-32 sank U-159, U-759 and U-359; VP-94 sank U-590 and U-662. U-135 was killed by VP-92 and British surface units, while Bombing Squadron (VB) 107 tallied U-613. VP-74 sank U-513 and in coordination with two Brazilian patrol planes sank U-199. U-43 was sunk by VB-127. In August, U-572 was dispatched by VP-205. In an eight-hour battle involving 7 PBMs, a PV, an Army B-18 and a K-type blimp, U-615 finally succumbed to the combined attacks of VP-204, VP-205, VB-130 and the 10th Bombing Squadron Army Air Force, with the assistance of ZP-51. Also in August, VB-129, VP-107 and USS *Moffett* combined forces to sink U-604 and Fleet Air Wing 7 deployed to the United Kingdom for operations under control of 19 Group, Royal Air Force Coastal Command.

In September, U-161 fell prey to VP-74. Also, the operational units of Fleet Air Wings 5 and 9 merged into Fleet Air Wing 9. Headquarters moved to New York, and Commander Fleet Air Wing 9 assumed additional duties as Eastern Sea Frontier Air Officer. Fleet Air Wing 5 became the Atlantic Fleet

OS2U on inshore patrol, Eastern Sea Frontier, July 1942.

80-G-13132



Training Wing for the remainder of the war. Also in September, Army antisubmarine units and Civil Air Patrol units supporting the Eastern Sea Frontier were replaced by units of Fleet Air Wing 9, and Civil Air Patrol units were no longer assigned to Gulf Sea Frontier operational control.

Following the withdrawal of submarines from the North Atlantic convoy area, Adm. Doenitz sent his force to operate in distant waters. This was done to preserve as much of the force as possible until new developments would again allow a return to attack on the vital North Atlantic convoys. These developments included installation of improved 20mm anti-aircraft cannon, the acoustic torpedo, a new radar countermeasures receiver and a new radar decoy. Aerial reconnaissance by Luftwaffe Focke Wulf patrol planes provided advanced warning and location of Gibraltar and other southbound convoys. The submarine offensive in the Bay of Biscay and the other more remote operating areas proved to be costly largely due to excellent Allied communications intelligence and the new 10cm radars about which the Germans had no information. Losses through the summer and into the autumn convinced Adm. Doenitz to conclude in his memoirs that "... the era of success has ended. All we could now hope to do was fight a delaying action and ... to tie down the forces of the enemy."

Submarine losses to American patrol aviation during the fourth quarter of 1943 included U-336, which fell to VB-128 in October; U-848 and U-849 sunk by VB-107; U-966 sunk by VB-103, VB-110 and a Royal Air Force Czechmanned B-24; and U-508 killed by VB-103 in November.

From November 1943 through the end of May 1944, the U-boats were important to Germany only in that they kept Allied shipping in convoy and tied down increasing numbers of antisubmarine warfare forces. During this period, Atlantic patrol aviation grew to peak at 25 patrol and 20 bombing squadrons. Significant new systems came into use and contributed to success: the sonobuoy, introduced in June 1943, and the L-7 searchlight, first used in a night attack in December. Magnetic Anomaly Detection

6 Nov: Recognition of the future importance of turbojet and turboprop power plants led the Bureau of Aeronautics to request the Naval Air Material Center to study requirements for a laboratory to develop and test gas-turbine power plants. This initiated action which led to the establishment of the Naval Air Turbine Test Station, Trenton, N.J.

29 Nov: The changing character of the war was reflected in a revision of the aircraft complement of Essex-class carrier air groups to 73 VF, 15 VB and 15 VT. The fighter complement was to be filled by two squadrons of 36 planes each, plus one for the air group commander, and to include 4 VF(N), 2 VF(P) and 2 VF(E). The change to the new figures was gradual, beginning with the assignment of Marine fighter squadrons in December and continuing

with the establishment of VBF squadrons the following month.

7 Dec: *Chourre* (ARV 1) was commissioned as the first aviation repair ship of the U.S. Navy, Captain A. H. Bergeson commanding.

12 Dec: Three Evacuation Squadrons (VEs) were established in the Pacific from Air-Sea Rescue Squadron elements already providing evacuation services.

30 Dec: The specification on aircraft color was amended to provide that patrol and patrol bombing landplanes received a color scheme that was similar to that prescribed for carrier-based airplanes. Specifically, the patrol planes and patrol bombers were to be painted semigloss sea blue on top and bottom surfaces of wings and on all horizontal tail surfaces; other tail surfaces and the fuselage were to be nonspecular sea blue.

(MAD) equipment was introduced in early 1944 and rockets were fitted to the PV in February.

Submarine losses to patrol aviation counted U-271 sunk by VB-103 in January and U-177 sunk by VB-107 in February. U-761 was detected attempting to pass through the Gibraltar-North Africa MAD barrier and was sunk by the concerted efforts of VP-63, VB-127, the Royal Air Force and two surface units. March and May saw the loss of U-392 and U-731, both to VP-63 and two surface units.

In an attempt to foil Allied plans for a possible invasion, Adm. Doenitz communicated anti-invasion dispositions to his submarines in May 1944. Communications intelligence intercepted and decoded this information. When the Germans recognized the Normandy landings were under way, Doenitz signaled execution of his plan. The intense Allied antisubmarine efforts which followed prevented significant loss to the invasion forces.

The invasion of France, Allied countermeasures, increased air patrols and the availability of timely, accurate and decrypted radio intelligence worked together to drive the U-boats from their French bases. The availability of the snorkel underwater breathing device enabled many to evade, but the sub-

marines were never an effective force after August 1944. The only submarine loss to American patrol aviation during the remainder of 1944 was U-863 sunk by VB-107.

On 1 October 1944, all VP and VB squadrons were redesignated VPB (multi-engine patrol bombing) squadrons.

In February 1945, U-327 was sunk by VPB-112 and five surface units; U-681 was sunk in March by VPB-103; and the last U-boat lost to American patrol aviation in WW II was U-1107, sunk by VPB-103. The European war ended with the surrender of Germany on 8 May 1945, VE day.

The Germans hoped to deploy their new design Type XXI, XXIII and XXVI submarines, with submerged endurance and high underwater speed, in numbers which would change the outcome of the war. Like many other German "miracle weapons," the advent of these submarines was far too late to have any effect on the war. Only two Type XXI boats came into service.

In the final analysis, patrol aviation in the Atlantic in WW II played a significant role in winning the Battle of the Atlantic and established the basis for future American and allied advances in air antisubmarine warfare through the years of the cold war submarine threat and up to this time. ■