# U-boat Campaign (World War I)

The **U-boat Campaign** from 1914 to 1918 was the World War I naval campaign fought by German U-boats against the trade routes of the Entente Powers. It took place largely in the seas around the British Isles and in the Mediterranean.

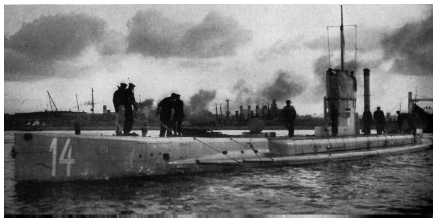
The German Empire relied on imports for food and domestic food production (especially fertilizer) and the United Kingdom relied heavily on imports to feed its population, and both required raw materials to supply their war industry; the powers aimed, therefore, to blockade one another. The British had the Royal Navy which was superior in numbers and could operate on most of the world's oceans because of the British Empire, whereas the German Kaiserliche Marine surface fleet was mainly restricted to the German Bight, and used commerce raiders and unrestricted submarine warfare to operate elsewhere.

The successful blockade of Germany contributed to its military defeat in 1918, and, still in effect, enforced the signing of the Treaty of Versailles in mid-1919.

## 1914: Initial campaign

### North Sea: Initial stage

In August 1914, a flotilla of ten U-boats sailed from their base in Heligoland to attack Royal Navy warships in the North Sea in the first submarine war patrol in history.[1] Their aim was to sink capital ships of the British Grand Fleet, and so reduce the Grand Fleet's numerical superiority over the German High Seas Fleet. The first sortie was not a success. Only one attack was carried out, when *U-15* fired a torpedo (which missed) at HMS *Monarch*. Two of the ten U-boats were lost.



German U-boat *U 14*

Later in the month, the U-boats achieved success, when *U-21* sank the cruiser HMS *Pathfinder*. In September, *U-9* sank three armored cruisers (*Aboukir*, *Hogue*, and *Cressy*) in a single action. Other successes followed. In October *U-9* sank the cruiser *Hawke*, and on the last day of the year *U-24* sank the "pre-dreadnought" battleship HMS *Formidable*. By the end of the initial campaign the U-boats had sunk nine warships while losing five of their own number.[2]

### Mediterranean: Initial stage

The initial phase of the U-boat campaign in the Mediterranean comprised the actions by the Austro-Hungarian Navy (KuK)'s U-boat force against the French, who were blockading the Straits of Otranto. At the start of hostilities the KuK had seven U-boats in commission; 5 operational, 2 training; all were of the coastal type, with limited range and endurance, suitable for operation in the Adriatic. Nevertheless they had a number of successes. On 21 December 1914 *U-12* torpedoed dreadnought *Jean Bart*, causing her to retire, and on 27 April 1915 *U-5* sank cruiser *Léon Gambetta*, with a heavy loss of life. But the KuK boats were unable to offer any interference to allied traffic in the Mediterranean beyond the Straits of Otranto.

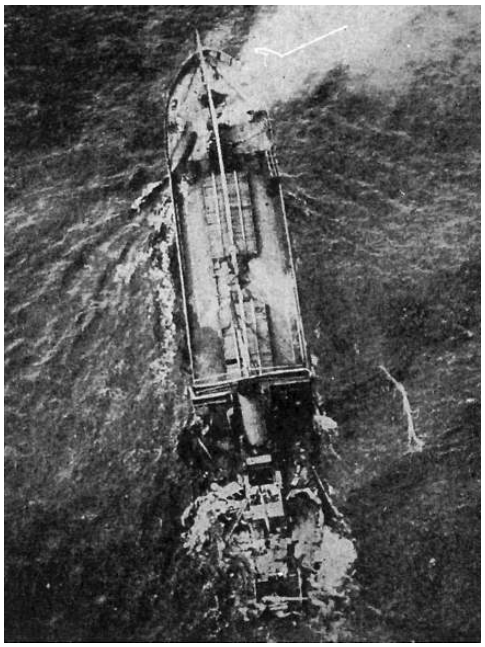
### Submarine warfare

In 1914 the U-boat's chief advantage was to submerge; surface ships had no means to detect a submarine underwater, and no means to attack even if they could, while in the torpedo the U-boat had a weapon that could sink an armoured warship with one shot. Its disadvantages were less obvious, but became apparent during the campaign. While submerged the U-boat was virtually blind and immobile; boats of this era had limited underwater speed and endurance, so needed to be in position before an attack took place, while even on the surface their speed (around 15 knots) was less than the cruising speed of most warships and two thirds that of the most modern dreadnoughts.[3]

The U-boats scored a number of impressive successes, and were able to drive the Grand Fleet from its base in search of a safe anchorage, but the German Navy was unable to erode the Grand Fleet's advantage as hoped. Also, in the two main surface actions of this period the U-boat was unable to have any effect; the High Seas Fleet was unable to draw the Grand Fleet into a U-boat trap. Whilst warships were travelling at speed and on an erratic zigzag course they were relatively safe, and for the remainder of the war the U-boats were unable to mount a successful attack on a warship travelling in this manner.

### First attacks on merchant ships

The first attacks on merchant ships had started in October 1914. At that time there was no plan for a concerted U-boat offensive against Allied trade. It was recognized the U-boat had several drawbacks as a commerce raider, and such a campaign risked alienating neutral opinion. In the six months to the opening of the commerce war in February 1915, U-boats had sunk 19 ships, totalling 43000 GRT.[4]



The British steamer *Andex* sinking after being torpedoed by a U-boat

## 1915: War on commerce

## Unrestricted submarine warfare

By early 1915, all the combatants had lost the illusion that the war could be won quickly, and began to consider harsher measures in order to gain an advantage.

The British, with their overwhelming sea power, had established a naval blockade of Germany immediately on the outbreak of war in August 1914, and in early November 1914 declared it to be a War Zone, with any ships entering the North Sea doing so at their own risk.[5] The blockade was unusually restrictive in that even foodstuffs were considered "contraband of war". The Germans regarded this as a blatant attempt to starve the German people into submission and wanted to retaliate in kind, and in fact the severity of the British blockade did not go over well in America, either.

Germany could not possibly deal with British naval strength on an even basis, and the only possible way Germany could impose a blockade on Britain was through the U-boat. The German Chancellor, Theobald von Bethmann Hollweg, felt that such a submarine blockade, based on "shoot without warning", would antagonise the United States and other neutrals. However, he was unable to hold back the pressures for taking such a step.

Shaded area shows "War Zone" announced by Germany on 4 February 1915

In response to the British declaration in November 1914 that the entire North Sea was now a War Zone, on 4 February 1915 Admiral Hugo von Pohl, commander of the German High Seas Fleet, published a warning in the *Deutscher Reichsanzeiger* (Imperial German Gazette):

> (1) The waters around Great Britain and Ireland, including the whole of the English Channel, are hereby declared to be a War Zone. From February 18 onwards every enemy merchant vessel encountered in this zone will be destroyed, nor will it always be possible to avert the danger thereby threatened to the crew and passengers.
>
> (2) Neutral vessels also will run a risk in the War Zone, because in view of the hazards of sea warfare and the British authorization of January 31 of the misuse of neutral flags, it may not always be possible to prevent attacks on enemy ships from harming neutral ships.[6]

In time, this would bring non-European nations (such as Brazil and the United States) into the war.

The German U-boat force was now primarily based at Ostend in Belgium, giving the submarines better access to the sea lanes around England. The Germans made use of this advantage, sending out about 20 U-boats to begin the naval blockade. In January, before the declaration of "unrestricted submarine warfare" as the submarine blockade was called, 43,550 tonnes of shipping had been sunk by U-boats. The number of sinkings then steadily increased, with 168,200 tonnes going down in August. Attacking without warning, German U-Boats sank nearly 100,000 GRT per month, an average of 1.9 ships daily.[6]

On 10 April 1915 the British steamer *Harpalyce*, a Belgian relief ship and clearly marked as such, was torpedoed without warning by *UB-4* near the North Hinder lightship, just outside the strip of sea declared safe by von Pohl. The ship had been en route for America to collect food for starving Belgians, and its sinking outraged American citizens already unhappy at the death of Leon C. Thrasher, drowned when the SS *Falaba* was sunk on 28 March 1915 by *U-28* (Thrasher incident).[7]

## RMS *Lusitania*

On 7 May 1915, the liner RMS *Lusitania* was torpedoed by *U-20*, 13 mi (21 km) off the Old Head of Kinsale, Ireland, and sank in just 18 minutes. Of the 1,959 people aboard, 1,198 were killed, 128 of them US citizens.

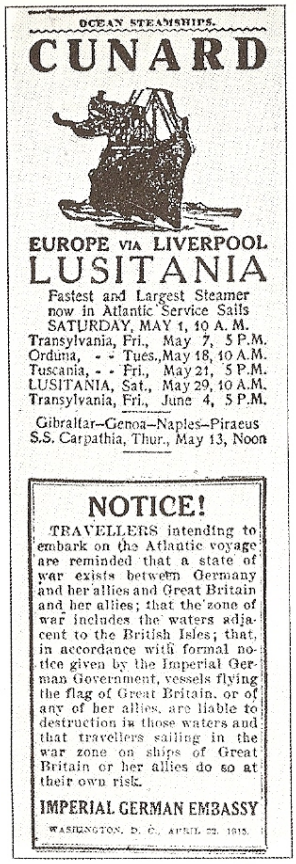
Following the incident, the German government attempted to justify it with a range of arguments, which are still debated today; nevertheless there was massive outrage in Britain and America, and the British felt that the Americans had to declare war on Germany. However, US President Woodrow Wilson refused to over-react, though the massive loss of life caused by the sinking of *Lusitania* required a definitive response from the US.

When Germany began its submarine campaign against Britain, Wilson had warned that the US would hold the German government strictly accountable for any violations of American rights. Backed by State Department second-in-command Robert Lansing, Wilson made his position clear in three notes to the German government issued on 13 May, 9 June, and 21 July.

The first note affirmed the right of Americans to travel as passengers on merchant ships and called for the Germans to abandon submarine warfare against commercial vessels, whatever flag they sailed under.

In the second note Wilson rejected the German arguments that the British blockade was illegal, and was a cruel and deadly attack on innocent civilians, and their charge that the *Lusitania* had been carrying munitions. William Jennings Bryan considered Wilson's second note too provocative and resigned in protest after failing to have it moderated.

The third note, of 21 July, issued an ultimatum, to the effect that the US would regard any subsequent sinkings as "deliberately unfriendly". While the American public and leadership were not ready for war, the path to an eventual declaration of war had been set as a result of the sinking of the *Lusitania*.


OCEAN STEAMSHIPS.

CUNARD

EUROPE VIA LIVERPOOL

LUSITANIA

Fastest and Largest Steamer now in Atlantic Service Sails SATURDAY, MAY 1, 10 A. M.

Transylvania, Fri., May 7, 5 P.M.
Orduna, - - Tues., May 18, 10 A.M.
Tuscania, - - Fri., May 21, 5 P.M.
LUSITANIA, Sat., May 29, 10 A.M.
Transylvania, Fri., June 4, 5 P.M.

Gibraltar–Genoa–Naples–Piraeus
S.S. Carpathia, Thur., May 13, Noon

NOTICE!

TRAVELLERS intending to embark on the Atlantic voyage are reminded that a state of war exists between Germany and her allies and Great Britain and her allies; that the zone of war includes the waters adjacent to the British Isles; that, in accordance with formal notice given by the Imperial German Government, vessels flying the flag of Great Britain, or of any of her allies, are liable to destruction in those waters and that travellers sailing in the war zone on ships of Great Britain or her allies do so at their own risk.

IMPERIAL GERMAN EMBASSY

WASHINGTON, D. C., APRIL 22, 1915.

Official warning issued by Imperial German Embassy

## Submarine minelayers

The appearance of new minefields off the East coast of Britain in June 1915 was puzzling to the Royal Navy due to the waters being very busy, and was blamed initially on neutral fishing boats. However, on 2 July the small coaster *Cottingham* accidentally ran down the small coastal U-boat *UC-2* off Great Yarmouth, and when she was salvaged she was found to be a submarine minelayer, fitted with twelve mines in six launching chutes.[8]

On August 21 *UC-5* became the first submarine minelayer to penetrate into the English Channel, laying 12 mines off Boulogne, one of which sank the steamship *William Dawson* the same day. *UC-5* laid 6 more mines off Boulogne and Folkestone on 7 September, one of which sank the cable layer *Monarch*. Further mines were laid off the southeast coast by *UC-1*, *UC-3*, *UC-6*, and *UC-7*.

## SS *Arabic*

On 19 August 1915 *U-24* sank the White Star liner SS *Arabic*, outward bound for America, 50 mi (80 km) south of Kinsale. He fired a single torpedo which struck the liner aft, and she sank within 10 minutes, with the loss of 44 passengers and crew, 3 of whom were American. Following speculation that the US would sever relations with Germany, on 28 August the Chancellor issued new orders to submarine commanders and relayed them to Washington. The new orders stated that until further notice, all passenger ships could only be sunk after warning and

the saving of passengers and crews. This proved unacceptable to the Naval High Command, and on 18 September the High Seas flotillas were withdrawn from the commerce war.

## Dardanelles operations

The German Navy sent their first submarines to the Mediterranean in response to the Anglo-French Dardanelles campaign, after it became obvious that their Austro-Hungarian allies could do little against it with their small submarine force, which nevertheless was successful in defending the Adriatic. The first U-boats sent, *U-21* and the two small coastal boats, *UB-7* and *UB-8*, achieved initial success, *U-21* sinking the Royal Navy predreadnought battleships HMS *Triumph* and HMS *Majestic* on 25 and 27 May respectively on her way to Constantinople, but ran into severe limitations in the Dardanelles, where swarms of small craft and extensive anti-submarine netting and booms restricted their movements.

By the end of June 1915, the Germans had assembled a further 3 prefabricated Type UB I submarines at Pola, 2 of which were to be transferred to the Austrian Navy. They were also assembling 3 Type UC I minelaying submarines, which were ordered converted into transports to carry small quantities of critical supplies to Turkey.

## Mediterranean operations

The Mediterranean was an attractive theater of operations to the German Admiralstab; a significant proportion of British imports passed through it, it was critical to French and Italian trade, and submarines would be able to operate effectively in it even in autumn and winter when poor weather hampered Atlantic and North Sea operations. Additionally, there were certain choke points through which shipping had to pass, such as the Suez Canal, Malta, Crete, and Gibraltar. Finally, the Mediterranean offered the advantage that fewer neutral ships would be encountered,[9] such as US or Brazilian vessels, since fewer non European citizens then travelled the waters.

Throughout the summer, the Germans assembled a force of 4 boats at Cattaro for operations against commerce in the Mediterranean. The campaign got underway in October 1915, when *U-33* and *U-39*, followed later by *U-35*, were ordered to attack the approaches to Salonika and Kavalla. That month, 18 ships were sunk, for a total of 63,848 tons. It was decided the same month that further reinforcements were called for, and a further large U-boat, *U-38* sailed for Cattaro. Since Germany was not yet at war with Italy, even though Austria was, the German submarines were ordered to refrain from attacking Italian shipping in the eastern Mediterranean where the Italians might expect hostile action only from German submarines. When operating in the west, up to the line of Cape Matapan, the German U-boats flew the Austrian flag, and a sinking without warning policy was adopted, since large merchant ships could be attacked on the suspicion of being transports or auxiliary cruisers.

The German Admiralty also decided that the Type UB II submarine would be ideal for Mediterranean service. Since these were too large to be shipped in sections by rail to Pola like the Type UB I, the materials for their construction and German workers to assemble them were sent instead. This meant a shortage of workers to complete U-boats for service in home waters, but it seemed justified by the successes in the Mediterranean in November, when 44 ships were sunk, for a total of 155,882 tons. The total in December fell to 17 ships (73,741 tons) which was still over half the total tonnage sunk in all theaters of operation at the time.

In November 1915 *U-38* caused a diplomatic incident when she sank the Italian steamer *Ancona* while sailing under the Austrian flag, and the loss of 40 American citizens caused the "sinking without warning" policy to be abandoned until the resumption of unrestricted submarine warfare in 1917. A similar "false flag" incident in March 1916 was an influence on Italy's decision to declare war on Germany in August 1916.[10]

## Allied countermeasures

Allied countermeasures during this period had mixed success.

Defensive measures, such as arming merchant ships, and advising them to either run, or turn towards the U-boat in order to ram, or force it to submerge, were the most effective.,[11] From arming ships for self defence, the next step was arming ships for the purpose of engaging the U-boats in gun battles; 2 U-boats were sunk in 1915 whilst attacking trawlers so fitted. The following step was to arm and man ships with hidden guns to do so, the so-called Q ship. A variant on the idea was to equip small vessels with a submarine escort. In 1915 2 U-boats were sunk by Q-ships, and 2 more by submarines accompanying trawlers.[12]

United States Navy recruitment poster

Offensive measures were less effective; efforts were made to use nets to find submerged U-boats, and explosive sweeps to destroy them, but these were largely failures.[13] Attempts were also made to close routes like the Straits of Dover with boom nets and minefields, the so-called Dover Barrage; to lay minefields around U-boat bases, and station submarines on patrol to catch them leaving or entering port. These measures required a huge expenditure of effort and material, but met with little success. Just 2 U-boats were sunk by these measures in 1915.[12]

At the beginning of this period the British Merchant Marine had a shipping fleet totaling of 21 million GRT. In six months of unrestricted submarine warfare U-boats sank ¾ million tons of Allied shipping, scarcely denting the British merchant fleet; Whilst new building, and additions from ships seized, had more than made up this loss. On the other hand, serious offence had been given to neutrals such as Norway and the Netherlands, and brought the United States to the brink of war. This failure, and the various restrictions imposed on the U-boat Arm in the Atlantic area largely brought the campaign there to a halt, although it continued with little hindrance in the Mediterranean and elsewhere, where there was less likelihood of offending neutrals.

## Depth charges

The depth charge, or "dropping mine" as it was initially named, was first mooted in 1910, and developed into practicality when the British Royal Navy's Commander in Chief, Admiral of the Fleet Sir George Callaghan, requested its production in 1914. Design work was carried out by Herbert Taylor at HMS *Vernon* Torpedo and Mine School in Portsmouth, England, and the first effective depth charge, the "Type D", became available in January 1916.

Anti-submarine vessels initially carried only two depth charges, to be released from a chute at the stern of the ship. The first success was the sinking of *U-68* off Kerry, Ireland, on 22 March 1916 by the Q-ship *Farnborough.* Germany became aware of the depth charge following unsuccessful attacks on *U-67* on 15 April 1916, and *U-69* on 20 April. *UC-19* and *UB-29* were the only other submarines sunk by depth charges during 1916.[14]

# 1916: The High Seas Fleet; Mediterranean, American, and Arctic waters

## In support of the High Seas Fleet

In 1916 the German Navy again tried to use the U-boats to erode the Grand Fleet's numerical superiority; they staged operations to lure the Grand Fleet into a U-boat trap. Because the U-boats were much slower than the battle fleet, these operations required U-boat patrol lines to be set up in advance; then the battle fleet maneuvered to draw the Grand Fleet onto them.[15]

Several of these operations were staged, in March and April 1916, but with no success. Ironically, the major fleet action which did take place, the Battle of Jutland, in May 1916, saw no U-boat involvement at all; the fleets met and engaged largely by chance, and there were no U-boat patrols anywhere near the battle area. A further series of operations, in August and October 1916, were similarly unfruitful, and the strategy was abandoned in favor of resuming commerce warfare.

The British were well aware of the risk of U-boat traps to the Grand Fleet, although they had no means of knowing where these might lay. However Jellicoe had developed a tactical response to the problem (which, in the event, was never tested). Faced with a German fleet that turned away, he would assume a submarine trap, and decline to follow, but would move at high speed to the flank, before deploying or opening fire; the aim of this would be to fight the battle away from the ground chosen by his enemy, and forcing any U-boats present to surface if they intended to follow.[16]

## Mediterranean waters

During 1916 the commerce war continued unabated in the Mediterranean. Allied countermeasures were largely ineffective; the complex arrangements for co-operation between the various navies meant a fragmented and unco-ordinated response, while the main remedy favored by the Allies for the U-boat menace, the Otranto Barrage, was of little value.

Just two U-boats were caught in the barrage in all the time it was in operation; meanwhile merchant shipping suffered huge losses. In 1916 the Allies lost 415 ships, of 1,045,058 GRT, half of all Allied ships sunk in all theatres.

Eight of the top dozen U-boat aces served in the Pola flotilla, including the highest scoring commander of all, K/L Arnauld de la Perière.

## American waters

In 1916 the Germans completed two submarine merchant vessels, to be used as blockade runners. The aim was to use them to carry high value goods to neutral nations such as the U.S., which still maintained a strict neutrality, and was prepared to trade with Germany as with any other nation. The first of these vessels, *Deutschland*, sailed in summer 1916 and made a favorable impact on U.S. public opinion. She made a second equally successful voyage in autumn of that year. Her sister, *Bremen*, was less fortunate; she disappeared on her maiden voyage, the cause of her loss unknown.

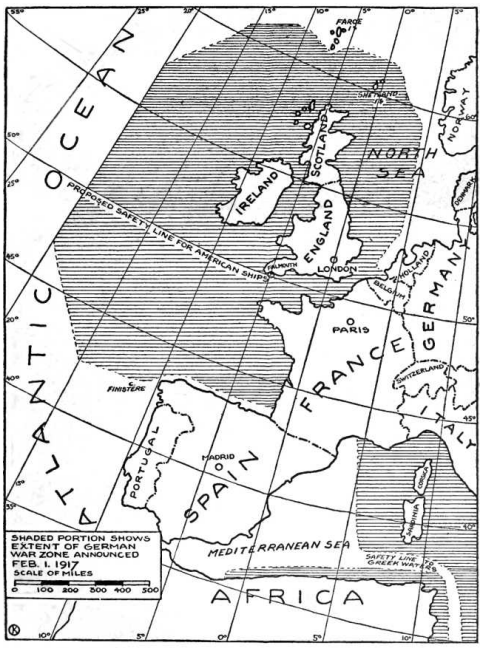
A less favorable impression was made by the cruise of *U-53* under K/L Hans Rose. After refuelling at Newport, Rhode Island, Rose raided Allied shipping off the coast of Canada and the United States. Although this was in international waters, and Rose scrupulously followed international law, the action was seen as an affront to the U.S., particularly when U.S. warships were forced to stand aside while merchant ships nearby were sunk.[17]

### Arctic waters

In autumn 1916, U-boats of the High Seas flotilla attacked shipping bound for Russia. Five U-boats operated in the Barents Sea between North Cape and the Kola inlet. Also, the two UE1-class minelaying boats laid minefields in the White Sea. These boats sank 34 ships (19 of them Norwegian) before winter ice closed the area for operations.

## 1917: Resumption of unrestricted submarine warfare

On 22 December 1916, Admiral von Holtzendorff composed a memorandum which became the pivotal document for Germany's resumption of unrestricted U-boat warfare in 1917. Holtzendorff proposed breaking Britain's back by sinking 600,000 tons of shipping per month, based on a February 1916 study by Dr. Richard Fuss, who had postulated that if merchant shipping was sunk at such a rate, Britain would run out of shipping and be forced to sue for peace within 6 months, well before the Americans could act. Even if the "disorganized and undisciplined" Americans did intervene, Holtzendorff assured the Kaiser, "I give your Majesty my word as an officer, that not one American will land on the Continent."[18]



NEW GERMAN SUBMARINE WAR ZONE OF FEBRUARY 1, 1917

The shaded areas show the unrestricted submarine warfare zone announced by Germany on 1 February 1917

On 9 January 1917, the Kaiser met with Chancellor Bethmann-Hollweg and military leaders at Schloss Pless to discuss measures to resolve Germany's increasingly grim war situation; its military campaign in France had bogged down, and with Allied divisions outnumbering German ones by 190 to 150, there was a real possibility of a successful Allied offensive. Meanwhile, the German navy was bottled up in its home port of Kiel, and the British blockade had caused a food scarcity that was in turn causing deaths due to malnutrition. The military staff urged the Kaiser to unleash the submarine fleet on shipping travelling to Britain, Hindenburg advising the Kaiser that "The war must be brought to an end by whatever means as soon as possible." On 31 January, the Kaiser duly signed the order for unrestricted submarine warfare to resume effective 1 February; Bethmann-Hollweg, who had opposed the decision, said "Germany is finished".[19]

On 27 January, Admiral Beatty observed that "The real crux lies in whether we blockade the enemy to his knees, or whether he does the same to us."[20]

Germany had 105 submarines ready for action on 1 February: 46 in the High Seas Fleet; 23 in Flanders; 23 in the Mediterranean; 10 in the Baltic; and 3 at Constantinople. Fresh construction ensured that, despite losses, at least 120 submarines would be available for the rest of 1917. The campaign was initially a great success, nearly 500,000 tons of shipping being sunk in both February and March, and 860,000 tons in April, when Britain's supplies of wheat shrank to 6 weeks worth. In May losses exceeded 600,000 tons, and in June 700,000. Germany had lost only 9 submarines in the first three months of the campaign.[20]

On 3 February, in response to the new submarine campaign, President Wilson severed all diplomatic relations with Germany, and the U.S. Congress declared war on 6 April.

### Allied response

Further information: Convoys in World War I

The new policy of unrestricted submarine warfare was initially a success. In January 1917, prior to the campaign, Britain lost 49 ships; in February, after it opened, 105; and in March, 147. In March a full 25% of all Britain-bound shipping was sunk.

The British Admiralty failed to respond effectively to the German offensive. Despite the proven success of troop convoys earlier in the war, the Channel convoys between England and France, and the Dutch, French, and Scandinavian convoys in the North Sea, they initially refused to consider widespread convoying or escorting. Convoying imposed severe delays on shipping, and was believed to be an own goal, amounting to a loss of carrying capacity greater than the loss inflicted by the U-Boats. It was disliked by both merchant and naval captains, and derided as a defensive measure. It was not until 27 April that the Admiralty endorsed the convoy system, the first convoy sailing from Gibraltar on 10 May.[20]

In April, US Rear Admiral William Sims arrived in London as US Naval Liaison. He was dismayed to be informed by the Admiralty that Germany would win the war if its submarines went unchecked, and cabled Washington to have USN destroyers despatched to Queenstown, Ireland, from where they were to patrol to the west.[20]

As merchantmen from Allied countries were sunk, Brazilian ships took over routes that had been vacated. However, this led the Brazilian vessels into waters patrolled by U-boats. When coupled with Germany's policy of unrestricted submarine warfare, the result was that Brazilian ships were soon lost, which drove the country closer to declaring war on the Central Powers.[21]

In May and June a regular system of transatlantic convoys were established, and after July the monthly losses never exceeded 500,000 tons, although they remained above 300,000 tons for the remainder of 1917. Convoying was an immediate success; on whichever routes it was introduced it resulted in a drop in shipping losses, with the U-boats seeking out easier prey. It also brought warships escorting the convoys in contact with attacking U-boats, leading to an increase in U-boats destroyed. German submarine losses were between 5 and 10 each month, and they soon realized the need to increase production, even at the expense of building surface warships. However, production was delayed by labour and material shortages.[20]

## 1918: The last year

At the end of 1917 Allied shipping losses stood at over 6 million GRT for the year overall. However monthly shipping losses had dropped to around 300,000 GRT per month, and never rose to the levels suffered in spring 1917.[22] With the establishment of a comprehensive convoy system, Allied shipping losses fell to non-critical levels, while U-boat losses increased alarmingly. From 48 boats lost in the years up to February 1917, a further 61 were lost by the end of the year.[23]

The logical response to the convoy system, which concentrated forces for the defence, was to similarly concentrate the attacking force. The U-boat arm did not succeed in World War I in developing such a response. Just one attempt was made to operate a group, to mount a pack attack on any convoy encountered; 6 U-boats sailed in May 1918 as a group, commanded by K/L Rucker in *U-103*. They encountered several home-bound convoys and succeeded in sinking 3 ships, but at the loss of 2 of their number, including *U-103*, which was rammed by the troopship *Olympic*. Rucker had found it next to impossible to exercise control from his position at sea, and the loss ratio discouraged any further experiments.[24]

## U-cruisers

Late in the war, the German high command decided to take the submarine war to the coast of the US, using the large Type U-151 U-boats. The Type U-151 carried 18 torpedoes and two 105 mm deck guns, and had a range of around 25000 nautical miles (46300 km). Seven had been built in 1916, originally as large merchant U-boats for shipping material to and from locations otherwise denied German surface ships, such as the United States, and 6 were refitted for war duty in 1917. They were the largest U-boats of World War I.

## American campaign

*U-151* departed Kiel on 14 April 1918 commanded by Korvettenkapitän Heinrich von Nostitz und Jänckendorff, her mission to attack American shipping. She arrived in Chesapeake Bay on 21 May where she laid mines off the Delaware capes, and cut the submerged telegraph cables which connected New York with Nova Scotia. On 25 May she stopped three US schooners off Virginia, took their crews prisoner, and sank the three ships by gunfire. On 2 June 1918, known to some historians as "Black Sunday", *U-151* sank six US ships and damaged two others off the coast of New Jersey in the space of a few hours. The next day the tanker *Herbert L. Pratt* struck a mine previously laid by *U-151* in the area but was later salvaged. Only 13 people died in the seven sinkings, their deaths caused by a capsized lifeboat.[25] She returned to Kiel on 20 July 1918 after a 94-day cruise in which she had covered a distance of 10915 mi (17566 km), sunk 23 ships totalling 61,000 tons, and had laid mines responsible for the sinking of another 4 vessels.[26]

Encouraged by the success of *U-151*, *U-156*, *U-117*, and the large Type 139 U-cruiser *U-140* were despatched on similar missions, but the US Navy was now ready for them, and the hunting was not as good. *U-156* was lost with all hands on the return voyage when she struck a mine off Bergen, Norway, on 25 September 1918. Another trio of long-range submarines, *U-155*, *U-152*, and U-cruiser *U-139* were making their way across the Atlantic in November 1918 when the war ended.

A few of the U-cruisers also made long voyages south to the Azores and the African coast, where they operated generally unmolested against shipping operating in the area, though one, *U-154*, was torpedoed by the British submarine HMS *E35* off the coast of Portugal in May 1918.

## Final countermeasures

By 1918 the Allied anti-submarine measures had continued to become more effective.

Aircraft began to play an increasingly effective role in patrolling large areas quickly. While they had little effect when attacking (only one U-boat was confirmed as sunk by air attack) the presence of aircraft forced the U-boat to dive, becoming blind and immobile, or risk the air patrol summoning hunting warships to the scene. During 1918 no convoy escorted by air patrol lost a ship, and U-boats were forced increasingly to operate at night or beyond aircraft range.[27]

In 1918 the USN embarked on a mammoth scheme to create a barrage across the routes exiting the North Sea. The North Sea Mine Barrage saw the laying of over 70,000 mines during the summer of 1918. From September to November 1918 6 U-boats were sunk by this measure.[28]

The RN also developed the R class submarine, designed as a hunter-killer vessel, with a high underwater speed and sophisticated hydrophone system. These came too late to see action, however, and no successes were recorded by them.[29]

By the end of the year, Allied shipping losses were 2¾ million GRT for the year overall; The U-boat Arm lost 69 boats in 1918, its worst year.[22]

### United States Navy in the Mediterranean Sea

During the Great War United States Navy warships were deployed to both the Atlantic and Mediterranean with the primary objective of fighting German submarines and escorting convoys. Many contacts were made in the Mediterranean though only one decisive action occurred. An American auxiliary cruiser heavily damaged a U-boat during the Action of 4 April 1918. As result the Germans sailed directly for Spain where they scuttled their boat. American submarine chasers also engaged in one battle against Austro-Hungarian forces during the war. Though their participation in the conflict was intended as a counter-submarine effort, they were engaged by enemy shore batteries, charted a path through a minefield and helped sink two Austro-Hungarian destroyers at the naval base of Durazzo, Albania.

## Japanese participation

Beginning in April 1917, Japan, an ally of the United Kingdom, sent a total of 14 destroyers to the Mediterranean with cruiser flagships which were based at Malta and played an important part in escorting convoys to guard them against enemy submarines. The Japanese ships were very effective in patrol and anti-submarine activity.[30] However, of the 9 Austro-Hungarian navy submarines lost to enemy action, 5 were sunk by Italian navy units (*U-13*, *U-10*, *U-16*, *U-20*, and *U-23*), 1 by Italian and French units (*U-30*), 1 by Royal Navy units (*U-3*), while none were sunk by the Japanese navy, which lost one destroyer (Japanese destroyer *Sakaki*, torpedoed by *U-27*).

## Brazilian participation

On 21 December 1917 the British government requested that a Brazilian naval force of light cruisers be placed under Royal Navy control and a squadron comprising the cruisers *Rio Grande do Sul* and *Bahia*, the destroyers *Paraíba*, *Rio Grande do Norte*, *Piauí*, and *Santa Catarina*, and the support ship *Belmonte* and the ocean-going tug *Laurindo Pitta* was formed, designated the *Divisão Naval em Operações de Guerra* ("Naval Division in War Operations"). The DNOG sailed on 31 July 1918 from Fernando de Noronha for Sierra Leone, arriving at Freetown on 9 August, and sailing onwards to its new base of operations, Dakar, on 23 August. On the night of the 25 August the division believed it had been attacked by a U-boat when the auxiliary cruiser *Belmonte* sighted a torpedo track. The purported submarine was depth-charged, fired on, and reportedly sunk by the *Rio Grande do Norte*, but the sinking was never confirmed.

The DNOG patrolled the Dakar-Cape Verde-Gibraltar triangle, which was suspected to be used by U-boats waiting on convoys, until 3 November 1918 when it sailed for Gibraltar to begin operations in the Mediterranean, with the exception of the *Rio Grande do Sul*, *Rio Grande do Norte*, and *Belmonte*. The Division arrived at Gibraltar on 10 November; while passing through the Straits of Gibraltar, they mistook three USN subchasers for U-boats but no damage was caused.[31]

## The end

By 1918, U-boat losses had reached unacceptable levels, and the morale of their crews had drastically deteriorated; by the autumn it became clear that the Central Powers could not win the war.

The Allies insisted that an essential precondition of any armistice was that Germany surrender all her submarines, and on 24 October 1918 all German U-boats were ordered to cease offensive operations and return to their home ports. The Allies stipulated that all seaworthy submarines were to be surrendered to them and those in shipyards be broken up. The last significant role played by U-boats in World War I was the suppression of the German naval mutiny that same month, when they stood ready to "fire without warning on any vessel flying the red flag".[32]

# Summary

## Allied and Neutral Tonnage sunk by submarines in World War I

| Month | 1914 | 1915 | 1916 | 1917 | 1918 |
|---|---|---|---|---|---|
| January | | 47,981 | 81,259 | 368,521 | 306,658 |
| February | | 59,921 | 117,547 | 540,006 | 318,957 |
| March | | 80,775 | 167,097 | 593,841 | 342,597 |
| April | | 55,725 | 191,667 | 881,027 | 278,719 |
| May | | 120,058 | 129,175 | 596,629 | 295,520 |
| June | | 131,428 | 108,855 | 687,507 | 255,587 |
| July | | 109,640 | 118,215 | 557,988 | 260,967 |
| August | 62,767 | 185,866 | 162,744 | 511,730 | 283,815 |
| September | 98,378 | 151,884 | 230,460 | 351,748 | 187,881 |
| October | 87,917 | 88,534 | 353,660 | 458,558 | 118,559 |
| November | 19,413 | 153,043 | 311,508 | 289,212 | 17,682 |
| December | 44,197 | 123,141 | 355,139 | 399,212 | |
| Total | 312,672 | 1,307,996 | 2,327,326 | 6,235,878 | 2,666,942 |

**Grand Total** 12,850,815 gross tons

Unrestricted submarine warfare was resumed in February 1917 and the British began full-scale convoying in September 1917.the kaiser continued to sent his troops to u boats. In which a greater crisis evolved. The heaviest losses were suffered in April 1917 when a record 881,027 tons were sunk by the U-boats.[33]

During World War I nearly 5,000 merchant ships had been sunk by u-boats, with the loss of 15,000 Allied sailors lives.[34]

## German Submarine Force 1914–1918

| | 1914 | 1915 | 1916 | 1917 | 1918 |
|---|---|---|---|---|---|
| On hand | 24 | 29 | 54 | 133 | 142 |
| Gains | 10 | 52 | 108 | 87 | 70 |
| Battle losses | 5 | 19 | 22 | 63 | 69 |
| Other losses | | 8 | 7 | 15 | 9?? |
| Years end | 29 | 54 | 133 | 142 | 134 |

- Total operational boats: 351
- Total sunk in combat : 178 (50%)
- Other losses: 39 (11%)
- Completed after Armistice: 45
- Surrendered to Allies: 179
- Men lost in Uboats: 5,000 killed

## Notes

[1] Gibson and Prendergast, p. 2
[2] Tarrant p10, 11
[3] Jane p39-41, 124
[4] Tarrant p148
[5] Tucker, Spencer; Priscilla Mary Roberts (2005). *World War I*. ABC-CLIO. pp. 836–837. ISBN 1851094202.
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[7] Compton-Hall, p. 196
[8] Gibson and Prendergast, p. 50
[9] Halpern, p. 381
[10] Halpern, p. 382
[11] Messimer p31
[12] Tarrant p24
[13] Messimer p40, p50
[14] Tarrant, V.E., *The U-Boat Offensive 1914–1945*, New York, New York: Sterling Publishing Company, 1989, ISBN 1-85409-520-X, p. 27
[15] Halpern p329
[16] Halpern p37-38
[17] Grey p164
[18] Steffen, Dirk. "von Holtzendorff's Memo, 22 December 1916" (http://www.gwpda.org/naval/holtzendorffmemo.htm). World War I Document Archive. .
[19] Schmidt, Donald E. (2005). *The Folly of War: American foreign policy, 1898–2005*. Algora Publishing. p. 83. ISBN 0875863833.
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[21] Scheina (2003), pp. 35–36
[22] Tarrant p149
[23] Tarrant p43, p60
[24] Halpern p427
[25] ""Black Sunday" – Victims of U-151" (http://njscuba.net/sites/site_black_sunday.html). Scuba Diving – New Jersey & Long Island New York. .
[26] Gibson, p. 308
[27] Halpern p424-427
[28] Halpern p438-441
[29] Messimer p 145-6
[30] Falls, Cyril (1961). *The Great War*. New York: Capricorn Books. p. 295.
[31] Scheina, Robert L. (2003). *Latin America's Wars: The Age of the Professional Soldier, 1900–2001*. Brassey's. pp. 38–39. ISBN 1574884522.
[32] Williamson, Gordon; Darko Pavlovic (1995). *U-Boat Crews 1914–45*. Osprey Publishing. p. 7. ISBN 1855325454.
[33] Fayle, C. Ernest, *Seaborn Trade*, Vol. 3, p. 465, Table I[a]; London: John Murray, 1924.
[34] Uboat.net – http://www.uboat.net/history/wwi/part6.htm

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## External links

- World's Navies in World War 1, Campaigns, Battles, Warship losses (http://www.worldwar1atsea.net)
- "First Battle of the Atlantic" article (http://www.vectorsite.net/twsub2_1.html#m5).
- Photos of cruises of German submarine U-54 in 1916–1918. (http://www.u54.suedholland-ferienhaus.de/html/s_m__u_54.html)
- A 44 min. German film from 1917 about a cruise of the German submarine U-35. (http://www.europafilmtreasures.eu/PY/269/see-the-film-the_enchanted_circle)
- Uboat.net: (http://uboat.net/wwi/boats/index.html) Detailed information about German submarines.
- Room 40: (http://germannavalwarfare.info/indexbr.htm) original documents, photos and maps about World War I German submarine warfare and British Room 40 Intelligence from The National Archives, Kew, Richmond, UK.

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