Who Were the Crews Aboard WW2 US Subs

**What is a “bubblehead”?**

“Bubblehead” was probably intended to be a derogatory nickname for submariners. The name comes from the “bubble” in the inclinometer used to maintain depth. Even though it may have been intended to be somewhat derogatory, most sub sailors wear the label with pride. It is far better than being a “zoomie” (Naval Aviation) or a “skimmer”, a surface sailor.

**How many men were assigned to a submarine in WW2?**

The typical complement of boats like the Pampanito during the war was 80 men. This includes all of the submarines we built from 1940 and forward. During the last year or so of the war, that number gradually increased to 85.

The fleet boats from the 1930s had slightly fewer than 80 crewmen on board. The earlier S-boats had far fewer men on board. However, they were generally no longer in active combat by the last year of the war.

**Why weren’t the Gato/Balao/Tench boats designed for the number of men assigned?**

Actually, they had been. These submarines were originally expected have 70 men on board to operate the equipment available when they were designed. However, new equipment – often electronics - was added even before the war. Then we realized that we would require more than 70 men in a crew. Soon after the war started, a crew of 80 men became the standard.

Although the number of men in the crew increased, the basic design of the boats didn’t change. At that point, there was simply no place to put additional bunks. It was the equipment added later, and the men needed to operate it, that caused the shortage of bunks.

**Why did the number increase in the last year?**

The best estimates are that it was due to the addition of the second 40 mm Bofors gun or possibly because of added electronics or other equipment. However, confirmation of these reasons is hard to find.

We expected to have to invade Japan in order to force a surrender. After what we saw in the Pacific island-hopping campaign, we couldn’t expect Japan to surrender without a desperate, even suicidal, fight. We knew that an invasion would be a very costly undertaking in both men and ships. We expected that the fleet would be harassed constantly by *Kamikaze* aircraft and suicide boats. Our submarines were likely to be assigned as pickets to warn and help defend the fleet. Therefore, a second 40 mm Bofors was added to many boats. The increased staffing may have been for that gun. Fortunately, Japan surrendered after the second atomic bomb was dropped and we no longer needed to invade.

Throughout the war, new equipment was added to the boats to make them more effective. That new gear often needed more operators and maintenance. That was particularly true of the new radars and sonars as well as navigation equipment such as the new LORAN.

**Why does it take so many men to staff the submarine?**

On the surface at sea, there were a number of jobs to do and there would be one person awake in each compartment to monitor the space for problems or danger. For example, on the surface there would be

* The officer of the deck with three or four lookouts on the bridge.
* A helmsman, quartermaster (navigation) along with the sonar and radar operators in the conning tower.
* The Chief of the Watch plus an IC electrician and a messenger in the control room.
* A radar operator for the air search and IFF equipment.
* A radioman on watch in the radio room.
* Two electrician mates in maneuvering.
* A motor machinist mate (engineman) and an oiler in each engine room.
* Normally there would be a cook in the crew’s mess. There would often be a mess cook there too.
* A steward mate in the forward battery.
* A torpedoman on watch in each torpedo room.
* There are other duties, such as an electrician monitoring the battery, particularly during a charge.
* A gunner’s mate to maintain the guns

This is a total of about 24 per shift, and there are three shifts.

When submerged, the duties for some of these men would change. For example, the officer of the deck (OOD) will become the diving officer and there would be a new OOD in the conning tower. The oilers in the engine rooms will man the trim manifold and air manifold in the control room. The lookouts would man the bow and stern planes. In total, you will need about the same number of men when submerged as on the surface.

You need to have additional personnel on board to allow for trainees, injuries and illness. Gun crews will also need to be staffed during battle stations. In addition to these functions, there are the captain, the XO, the yeoman and pharmacist mate who generally aren’t on the watch list. The yeoman and the pharmacist mate might stand some watches as their primary duties permit.

**Since submarines had limited space, were there height and weight limits?**

There was a height limit on these boats. During WW2, it was six feet, four inches or 1.93 meters. That means two things. First, if you are six feet or taller, you probably won’t be able to stretch out on your bunk. You will sleep on your side curled up a bit. Second, it means there are multiple obstructions available for you to locate with your head. In that case, some important medical advice applies: if it hurts when you do that, don’t do that. A tall crew member who has been on a submarine even for a short while may appear to pay no attention to those painful obstacles, but he has already located them all - and not all the hard way. Submariners tend to be reasonably bright.

Location memory helps. In the dark in your home, you know where the furniture is and you avoid it. Unless, of course, someone has just added something or rearranged everything.

Weight was a different issue. There were weight limits, adjusted for height, to be met when joining the Navy. During WW2, there were no official limits after that. However, there might be informal pressure if you carried too much weight. You might not want to struggle through the watertight doors if you were seriously overweight. There have also been reports that the stench on the boats tended to suppress appetites.

At some point after the war, the rules changed. You then had to under the weight limits each time you reenlisted.

Those were the maximums. The minimum height and weight limits applied to everyone in the Navy when enlisting. There were no separate requirements for submarine service.

**Does that mean you wanted all smaller sailors on a submarine?**

Not really. It might be helpful to have some smaller sailors who could get into tight spaces to do some of the maintenance work. However, you needed some bigger men to push (technically to pull with pulleys and ropes) the 3,200-pound torpedoes into the tubes. You may also need someone to lift the heavy cylinder liners for the engines into place. The shells for the 5-inch gun weighed over 70 pounds. In short, you do want a number of good-sized sailors in the crew to do some of the heavy lifting and pulling.

The result is that you would have men of various sizes in the crew. It probably reflected the variety of the population in general, although with fewer basketball players.

**With all the negatives, why would anyone want to be on a submarine in WW2?**

Certainly, life on a diesel submarine can be primitive. The boats stink, they are cramped, they don’t ride on the ocean well and you may not get a full shower during the entire patrol. You may not see the sky for weeks at a time. Even if you were a lookout, you still may not see the sun for weeks since the boats were often submerged during daylight while in the patrol area. Diesel boats can be pretty unpleasant.

Still, sub sailors did think it was good duty. There were many advantages in being aboard a submarine. Those advantages are different in peacetime than they were in WW2, but there were and still are many reasons to volunteer.

During WW2, the main advantages appear to have been:

* In many cases, the biggest attraction was probably the extra submarine pay. That appears to be about 50% added to the base pay for sub sailors, at least for the junior ranks. This was very important to sailors when the country was just coming out of the Great Depression. This extra pay would often be sent home and could be very helpful to their families.
* Submarines were the only ships that could take the fight back to the Japanese early in the war. Even as the war progressed, it would take a while for the rest of the Navy to take the fight to Japanese waters. There was a real desire to avenge the attack on Pearl Harbor, and service on submarines was the quickest way to start getting even. There were the occasional attacks on the Japanese islands, such as the Doolittle/Halsey air raid on Tokyo. However, submarines could provide a more sustained attack.
* This may seem a bit morbid, but some men thought that the worst thing that could happen to them was to come home maimed. Submariners, on the other hand, were less likely to lose an arm or a leg. The odds were greater that they wouldn’t come home at all, but they weren’t likely to come home maimed. For some sailors, that was preferable.

Some advantages still apply:

* The crews are better. There were usually more volunteers for submarines than there were billets (positions) available. Naturally, the submarine service took the best available. Currently, reports are that you have to be in the top 15 to 20% of the Navy to be considered for submarines. That is true even for non-nuclear positions such as storekeepers, yeomen (admin) and cooks.
* Submariners were – and are – an elite group. It was a chance to be part of something special.
* The work is more interesting. You often operate independently and without much direction from above or afar. Sailors on our current submarines commonly cannot talk about much of what they did. Even the old boats could be doing interesting work such as training with Navy SEALS or Recon Marines, or just practicing intelligence gathering and photo reconnaissance.
* You can learn something new nearly every day. Sailing a submarine in three dimensions is more complex, challenging and interesting.
* Submarines are generally less formal than surface ships.
* Submarine duty could be a faster route for promotions. For officers, it could be a faster route to commanding your own ship. (This is no longer true since the advent of nuclear power.)

**What was the best part of being on a boat?**

This will vary for each individual. Having a greater impact than many others, the continued learning, the responsibility, having higher quality shipmates, an atmosphere of less formality, doing much more interesting work, or professional satisfaction – what’s your personal preference? Better pay and better food help morale but aren’t usually the primary motivators in the long run.

**How was a submarine less formal?**

The main factor is that there isn’t enough room for formality. Uniforms might be less uniform. On long patrols in the tropics, “uniforms” became very relaxed. In WW2 submarines, shaving generally wasn’t required. There was more banter and informal conversations. In quiet times, there would be verbal rehearsals for equipment failures or casualties. All of this was usually acceptable as long as everyone was also paying attention to their tasks and doing them well.

Another example is that “officers’ country” can’t be avoided as it can on a surface ship. There is only one level that can be used to get through the boat. The crew has work to do or meals to eat that require passing through the officers’ and chiefs’ berthing in the forward battery.

However, being less formal did not mean that the officers or crew were disrespectful or less precise when doing their jobs.

**What was the worst part of being on a boat?**

During WW2, the worst thing was, obviously, being attacked by depth charges, bombs or guns. It is impossible to truly explain what it was like to someone who didn’t experience it first-hand. Depth charging has been described as like being in a drum that is being hit by a large hammer. The difference is that your life is in immediate danger, and your job is to be still and be quiet. The crew could hear the attacking ship – even without the aid of sonar – and could often hear the depth charges as they hit the water. If the depth charges were close enough, they would hear the click of the detonators right before they exploded.

After that, the worst part could be the smell, inability to shower often enough, close quarters, lack of exercise or lack of sunshine. It depends on what is most important to you.

**How long were you assigned to a submarine in WW2?**

There is a fair amount of variation here, but it appears that a man would typically be assigned to the same boat for about 15 to 18 months of combat. The *Pampanito’s* war patrols covered a period of 13 months and just 30 of her original crew made all six patrols. That would be consistent with about 15% of the crew rotating off after each patrol.

In peacetime, men and women are typically assigned to the same ship for two to three years. Again, there can be a fair amount of variation.

**How often did sub sailors get home during WW2?**

Not very often. The needs of the war came first. Sailors might get a chance for leave and travel home when reassigned to another boat, particularly if it was to new construction. They would also get some leave during shipyard overhauls. During an overhaul, captains would try to give half the crew off at a time, usually starting with the married men whose wives were not nearby. Then the rest of the crew would get their chance to go home for a while.

All of this was true of the rest of the Navy as well.

**How were submarine sailors selected?**

Normally, the first requirement is that you have to volunteer. You have to be odd enough to want to be on a submarine. (We like to say that submariners’ brains are wired differently.) When someone offered you an opportunity to be stuffed into a 16-foot diameter pipe with 79 of your closest friends and then go down 400 feet or more below the surface of the ocean, that had to sound like a good idea. In fact, you usually had to ask to be a submariner.

The next step is that you have to be selected as a candidate. There are actually more volunteers than there are billets (positions or spaces) in submarines. As a result, the submarine force gets their pick of candidates. This is one of the reasons that submarine crews tend to be better than the average in the rest of the Navy.

Finally, the selected candidates are screened for even temperaments. There would be psychological testing if the Navy hasn’t already had a lengthy opportunity to observe you. The Submarine Force is looking for men (and now women) who are even tempered, who will “take an even strain.” Which candidates get along well with others and pitch in when there is extra work to do? Who will be a strong part of the team when a challenge, emergency or crisis arises.

**Was everyone a volunteer?**

Traditionally, everyone aboard a U. S. submarine is a volunteer. That has almost always been the case. The exception was early in WW2 when the submarine force needed to expand quickly. Some sub sailors at that time didn’t remember when they volunteered. (We like to say that they didn’t back up quickly enough when volunteers were asked for or that they were “voluntold.”)

However, if you don’t want to be on a submarine, you don’t have to. We probably don’t want you to be aboard if you aren’t comfortable there. You can always request to “non-vol”, even if you volunteered in the first place. Being at sea in such close quarters and submerged for so much time can be very different from just a training dive or two. It might be much more uncomfortable than you imagined. The Navy can always find another place for a quality, competent sailor to serve.

**How does one volunteer for submarines?**

Prior to WW2, an officer had to serve for two years on a surface ship before he could volunteer at all. However, that requirement ended during the war.

The first requirement is still that you have to be odd enough to think that you will enjoy being confined in a small space and underwater for significant periods of time. If so, then you submit your request for submarine service normally through your superiors and then your commanding officer.

The next step is to pass the preliminary selection. There are more volunteers than billets (spaces) available, so the submarine force gets their choice. Selection depends your demonstrated skills and maybe on your specialty.

The next step is to determine your ability to get along. For volunteers new to the Navy, this consists of psychological screening. The submarine service is looking for sailors who can be a teammate with an “even strain.” Someone who is in your face (either angry or happy) or too retiring will not qualify. You need to be able to enjoy the banter and mild pranks of your shipmates while working hard as a team when needed.

Officers who come through the Naval Academy or Navy Reserve Officer Training Corps (NROTC) programs are already well known to the Navy and are not normally screened again for sub duty. However, screening for nuclear power billets in submarines or carriers is done and is even more rigorous.

**What kind of training did they get for submarine duty?**

The usual program for diesel submarines was three months of sub school in New London for enlisted crew and six months for officers. This was in addition to any training for the enlisted crew in their ratings (specialties.) Once you got to your submarine, the training began in earnest.

During WW2, the training in sub school was condensed and sometimes skipped completely. If you went to sub school, it would be about half the normal time or about six weeks for enlisted men and three months for officers. For experienced sailors, sub school may be skipped altogether.

NOTE: The process for submarine school has changed, particularly for those who have been nuclear-trained. They will likely be sent to their boats after nuclear power school but without sub school so that the nuclear training doesn’t erode before they can use it.

When you got to your submarine, it was assumed that you actually knew very little. In fact, that was correct in that you had little practical experience. Your first job would be to become a qualified watchstander so you could start to carry your share of the workload. The next thing would be to earn your dolphins, to qualify for duty in submarines.

Qualifying usually required at least six months for enlisted men and at least a year for officers. You had to demonstrate your knowledge of all the basic systems on the boat. For an enlisted sailor, this would mean passing an oral exam while going through the boat with the Chief of the boat (COB) and then with the commanding officer or executive officer. An officer would qualify on another, similar submarine. The process would include rigging the boat for dive, diving the boat and conducting a practice attack.

The key thing about submarines is that you need to be able to respond quickly to any emergency. There are no damage control parties on a boat. It is up to whoever is in the space to respond and resolve an emergency. In order to do that, you need to know the systems in any space.

**Did anyone stress out and need to get out of submarines?**

During the war, there are a few instances of sailors stressing out when under attack. However, they were surprisingly few considering the stress of being depth charged.

In a few cases, the sailor might start yelling or trying to open a hatch to get out. In these cases, he would be forcibly subdued and then sedated. He might have to be knocked unconscious to render him quiet. He would usually remain sedated until returning to port. In a few other cases, the sailors froze and became very withdrawn, almost catatonic. In those cases, they might simply be relieved of their duties and replaced.

Sailors almost never stressed out just by being submerged. There are very few, if any, cases like this in the literature. After all, you had volunteered to be under water. If you thought there was any chance you might be claustrophobic, you weren’t likely to volunteer for submarines.

**What if you just changed your mind and wanted out of submarines?**

The policy is that you can always “non-vol” and leave submarines. I think it would be reasonable to expect interviews to be sure that is really what you want to do. After all, the Navy has invested time and money in your submarine training.

**Was there a doctor on board these submarines?**

No, there were no doctors on our submarines in WW2. The “docs”, as they were always called, were medics. These medics, called pharmacist mates at the time, were specially trained and qualified for independent duty and they were very good. They understood the art of medicine as well as the science. They were very good at diagnosis and treatment.

*Pampanito* did have a doctor on board briefly. On her third war patrol, when she was headed to Saipan with the rescued British and Australian soldiers, she was met by a destroyer. A doctor and another pharmacist mate were transferred to the boat to help with the weaker soldiers. Unfortunately, the doctor appears to have spent most of his time doing paperwork and complaining that *Pampanito* didn’t have enough fresh citrus fruit on board to prevent scurvy.

There are still no doctors on our attack submarines. The large missile boats are the only US subs with doctors on board at this time.

**What did the pharmacist mates treat?**

The main things that WW2 medics would treat would be minor injuries, a few broken bones, skin rashes, etc. A few needed to treat bullet wounds from surface attacks with guns; the enemy did tend to shoot back. There would probably be a few cases of venereal disease as well.

Colds and flu were relatively uncommon on submarines during WW2. Most sailors hadn’t had a chance to go home and be exposed to children who tend to spread such illnesses. If there was a cold or flu on board, it would probably spread rapidly because of the close living conditions and then die out.

They did not expect to treat men with tropical diseases like those of the rescued POWs.

**As a result, does that mean there were no surgeries on submarines in WW2?**

Not completely true. In addition to the cuts, bruises, broken bones and routine illnesses, the medics handled many emergency issues that came up. For example, there were three known appendectomies done on boats so they could stay on patrol. The first one was done on the *Seadragon* in 1942. The patient was in great pain and the medic thought he could do the surgery. The patient gave his consent. The operation took two and a half hours was done “by the book” with the medic following the descriptions and diagrams in his medical books. The patient recovered fully. A few notes:

* The surgery was done submerged, at 120 feet, to provide a steady platform.
* It was done on the wardroom table with the Executive Officer as the chief assistant.
* Ether was used as the anesthetic which can be dangerous in the closed spaces of a submerged submarine with no access to fresh air.
* Some instruments had to be devised from wardroom silverware. For example, a tea strainer was used as a mask to administer the ether and bent spoons were retractors.

In late 1942, successful appendectomies were also performed on the *Grayback* and on the *Silversides*. After that, the Navy issued orders that pharmacist mates were not to perform any further appendectomies. It would seem unlikely that there were no more cases of appendicitis on board submarines, but there do not appear to be any records of other surgeries.

**Were there any women on board submarines in WW2?**

There no women serving as crew on a submarine in WW2. There simply wasn’t any privacy. However, there were a few women as passengers when submarines rescued them or extracted coast watchers and other key personnel from islands in the war zone. The same was likely true for other ships, not just submarines. Hospital ships did have nurses aboard.

Although women have served in the Navy since 1917, when Loretta Walsh became the first women to enlist, they couldn’t serve on ships or in combat in WW2. Fully integrating women into the Navy took time with women unable to join the Naval Academy until 1976 and couldn’t serve in combat until 1994. This was true of all our military services.

**Was there an area that could be used for a jail?**

There was no such place on an operating submarine. There was rarely a need for one and, if there were, it wouldn’t usually be for the crew. Offenses that were serious might warrant confinement rarely, if ever, happened on a submarine during WW2. Besides, how could you physically punish someone worse than putting him on a submarine in combat – where he already was?

However, there was an occasional need to confine someone. That would usually be a Japanese POW, although that didn’t happen very often. Japanese soldiers and sailors would usually swim away from a rescue. It was too dishonorable to be captured. The few that were taken aboard, for intelligence purposes, would just be handcuffed to a bunk. Sometimes, the captured POW would want to contribute to the boat by helping with the cleaning. If the captain and crew believed that the POW was reliable enough, they would remove the handcuffs and let him help.

The assumption would be that if a crewmember needed to be confined, it would be easy enough to cuff him to a bunk for the rest of the patrol.

**Who were the officers?**

Officers were the managers on the submarine. They managed the departments for purposes of maintenance and training. They also led the watch sections, directing the operation of the ship under the guidance of the commanding officer.

**Were officers all the same?**

Yes and no. An ensign is an ensign and a lieutenant is a lieutenant. However, some were regular officers and some were reserves.

Regular officers enter the Navy through the Naval Academy or through the scholarship program of the Naval Reserve Officers Training Corps. (In spite of the name, the NROTC program graduates both regular and reserve officers.) Regular officers have a minimum service obligation but no definite end date. They serve at the pleasure of the president and request to resign.

Reserve officers enter the Navy through the non-scholarship part of the NROTC program or through various other reserve programs. They may also come through the Officer Candidate School (OCS). Reserve officers have a contract of a determined length but can be released early. They may also apply to become regular officers.

**Was there a difference in WW2?**

The biggest difference was that there were few reserve officers at the beginning of the war. Reserve officers were looked upon with some skepticism, particularly early on. However, they proved themselves to be capable officers and the submarine war would have been much less effective without them. It appears that nearly all submarine commanders were regular officers with most being Naval Academy graduates. It was late 1944 before the first reserve officer would command a submarine in WW2

**Were the officers on submarines specialists?**

Usually not, other than specializing in submarines. They were generalists who rotated through various assignments on the boats. If they remained in submarines for a career, they would probably hold most of the officers’ shipboard positions at some point. However, there were some exceptions. There were Engineering Duty Only (EDO) officers who were sometimes assigned to ships and the boats. There were also, at times, warrant officers (WO) or limited duty officers (LDO) who were specialists, usually formerly enlisted, who were commissioned and part of the wardroom.

It should be noted that officers who are submarine qualified do have a special designation in their personnel records. This does not, however, limit their opportunities for assignments or command on other ships.

**How many officers would be assigned to a submarine**

There would normally be eight to ten officers on a boat like the *Pampanito*.

**What roles did they have?**

The captain and the executive officer were designated and assigned by the Navy.

* The captain or commanding officer (CO) is the most senior officer assigned to the boat. He is responsible for the entire ship and all of its actions.
* The executive officer (XO) is second in line to command. He supports the captain during critical actions. He is usually responsible, subject to the captain’s approval, for personnel assignments and most other administrative matters. He would normally be qualified for command and able to assume command in case the captain is disabled or dies.

Most of the rest of the assignments would change at the discretion of the captain and XO. The most common roles, in general order of seniority, would be:

* The operations officer is responsible for navigation and preparing patrol and other operational plans. He may also manage other officers such as communications and electronics.
* The engineer is responsible for propulsion, the battery and other mechanical equipment such as pumps and compressors. The engineer was often the battle stations diving officer.
* The weapons officer was responsible for torpedoes, guns and related equipment.
* The electronics officer would be responsible for radar, sonar and electronic counter measures (ECM) equipment.
* The communications officer was responsible for the radio room, keeping the secret library current, drawing communications codes from base, issuing daily crypto codes and destroying them when no longer needed.
* The supply officer was responsible for ordering needed equipment, supplies and spare parts. He also worked with the lead cook to develop menus and order the needed food.
* The assistant engineer would support the engineer, usually by being responsible for the non-propulsion equipment such as the pumps and compressors.

These officers, with the likely exception of the CO and XO, would also be standing watches as the Officer of the Deck (OOD) or diving officer.

**Is ”captain” a rank or a job?**

It can be both. The commanding officer of any ship, such as a submarine, is referred to as the captain. Captain is also a naval rank just below admiral. Commanding officers of large ships may be captain of that ship and also hold the rank of captain. In WW2, captains (commanding officers) of submarines almost never held the rank of captain. They were usually commanders or lieutenant commanders. However, they were always addressed as captain since they were the commanding officers.

**Who or what are the Chief Petty Officers?**

Chiefs, as they are known and addressed, are the senior enlisted on the boat. They are specialists in their ratings and are experienced leaders. They are often referred to as the backbone of the Navy and are generally acknowledged to be the people who enable its functioning. There would be five or six chiefs assigned to the boat.

The chiefs’ quarters are in the forward battery compartment, across from the ship’s office. This space is referred to as the goat locker. (This naming is true of the entire Navy, not just submarines.) The space is so named because the chiefs are the “old goats” of the Navy. In WW2, they were as old as 28 or 30 years old.

In modern parlance, GOAT means the greatest of all time. Most chiefs recognize that would be a bit of an exaggeration when referring to the goat locker.

**Who is the Chief of the Boat, also known as the COB?**

This is a senior enlisted man (or woman) who has a special assignment on the boat. The COB was often, but not always, the most senior chief on board. The Chief of the Boat, or COB, is the go-between for the captain and XO and the enlisted crew. Although the COB is not an officer, he or she is treated as the third most senior person on board. The COB monitors morale and is a key part of training the crew in submarine qualifications. The COB defuses situations before they require formal punishment and may impose modest, informal punishment to keep issues off the record. This position has a long history on submarines and, in the early 1970’s, was implemented throughout the military as command master chiefs or command master sergeants.

In WW2, the COB was appointed by the CO and XO. They would select the chief who had the best leadership qualities. Currently, being a COB is a career track. The Navy offers specific training and qualifications. The COB is now appointed by the Navy, similar to the way the CO and XO are assigned. The COB is part of the command team and reaps the rewards for the success of the whole boat, as well as the discipline for significant failures.

**Who are the petty officers who aren’t chiefs?**

These are the specialists who are assigned to submarines and are proficient in a certain area of expertise. Petty officers in increasing seniority are third class, second class and first class. As they rise in rank, they will have qualified as having increasing technical knowledge and leadership ability. That also means they will have positions of greater responsibility, such as being responsible for a torpedo room or an engine room.

**What specialists (ratings) were typically assigned to submarines?**

These are the typical ratings for these submarines in WW2. Since then, the names of some ratings have changed. For example, motor machinist mates became enginemen. Pharmacist mates became hospital corpsmen. Another rating, gunner’s mate, became no longer applicable to submarines when the guns were removed in the early ‘50s. However, missile techs have been added to submarines with Tomahawk or Polaris/Poseidon/Trident missiles.

* Cook – prepares and cooks the meals. The overnight cook is the baker who makes bread, rolls, cakes and pies. The senior cook works with the supply officer to plan meals and order the necessary foods.
* Electrician mate – responsible for maintaining electrical circuits and operating the cubicle in the maneuvering room. Also responsible for maintaining the battery cells, checking the specific gravity (estimating the power remaining) and adding pure water when needed.
* Fireman – not yet a specialist, but a young sailor who is assigned to engineering and will eventually pursue a specific rating in that area.
* Gunner’s mate – responsible for maintaining and operating the guns. Some of this work regarding the guns would be done by the torpedomen.
* IC electrician – responsible for interior communications equipment including signaling systems.
* Machinist mate - responsible for mechanical systems other than the engines, such as the air conditioning, pumps, motors and mechanical systems other than the main engines.
* Motor mac – a motor machinist mate, responsible for the operation, maintenance and repair of the four main engines and the smaller “donkey” diesel which is in the lower level of the after engine room.
* Pharmacists mate – the “medic” who cares for his shipmates’ illnesses and injuries. These men were specially selected and trained for independent duty since there was no physician aboard the boats.
* Quartermaster – responsible for navigation and signaling between ships. Since submarines were often operating independently, signaling wasn’t often required. Assists the navigator and tracks the ship’s position between fixes.
* Radioman – responsible for sending and receiving messages as well as maintaining and repairing the radio equipment. Routes messages to the captain and other officers as appropriate. Alerts the Communications officer when highly classified messages need additional decoding. Responsible for keeping the crypto codes secure while in use.
* Seaman – similar to a fireman, not yet a specialist, but a young sailor who is assigned to an operations department and will eventually pursue a specific rating in that area.
* Sonarman – responsible for operating, maintaining and repairing the sonar equipment. Listens for the sounds of other ships in the area and alerts the Officer of the deck (OOD) to any unusual or unexpected sounds.
* Stewards mate – supports the officers; staffs the serving galley; provides the captain with coffee; etc.
* Storekeeper – works with the supply officer to submit the forms to obtain the food, spare parts and other materials needed by the boat.
* Torpedoman – responsible for maintaining and repairing the torpedoes on the boat. May have been part of the gun crews. Maintained the charge in the electric torpedoes. Maintained the torpedo tubes and associated equipment.
* Yeoman – administrative assistant. Maintained the records for assigned personnel and for other records for the boat. An example would be the patrol reports as directed by the captain.
* Mess cooks – these would normally be the newest and most junior members of the crew assigned to assist the cooks. They were most often seamen or firemen who have not yet been assigned to departments. (Mess cook is not a specialty or rating.) Mess cooks help with meal preparation and with cleanup. It is equivalent to KP duty in the Army. However, on submarines this is not usually a punitive assignment.

**Did they have special designations similar to the officers**?

Yes, they did. Sailors who were qualified in submarines had an “SS” added to their ratings. For example, radioman a third class who has qualified in submarines would have his rating upgraded from RM3 to RM3(SS). This is a formal designation noted in the man’s service record. Similar to the officer’s designation, this did not limit their future assignments.

**Were these the only responsibilities?**

No. Everyone was responsible for their submarine qualifications, including the basics about the entire boat. This was particularly true of younger sailors reporting aboard their first boat. It was also true when reporting to a new assignment. Boats could be slightly different and the new command had to ensure that sailors new to the command knew what they said they did. Obviously, requalifying on a different boat would be fairly quick and easy.

There may be training across similar ratings such as electronics or mechanicals. In addition, it was the responsibility of everyone on board to help train and to mentor the newest submariners.

**What was “Liberty”?**

Liberty was, and still is, time off for sailors when not on duty overnight or when visiting a port. Usually, one third of the crew will remain on board at any time so that the ship can get underway if needed during an emergency. The other two thirds may have liberty. Liberty is usually just overnight or over a weekend assuming the sailor isn’t part of a duty section. It is not time off counted against leave.

**What was “Leave”?**

Leave is extended time off, similar to vacations in the civilian world. It was earned at a consistent rate and an individual’s leave balance was tracked. During peacetime, there was a limit as to how much leave could be accrued without losing the days over the limit. Leave not taken would be paid out when the sailor leaves the Navy.