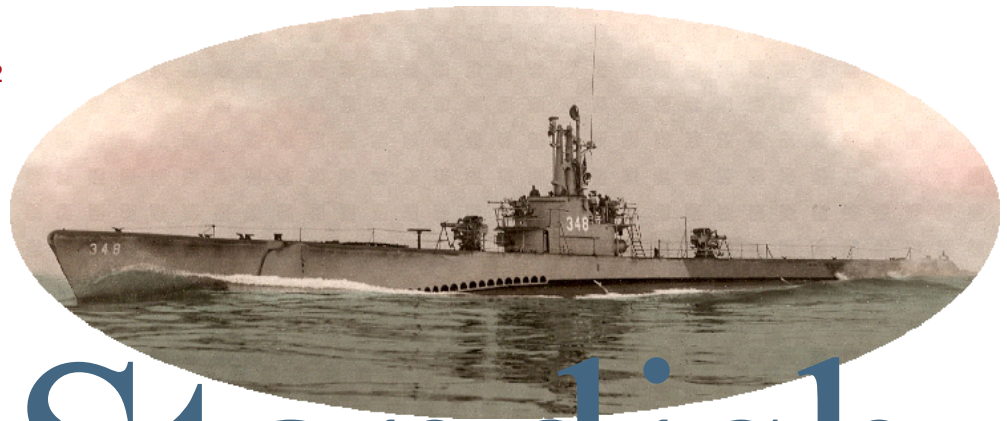


**►What is a Cusk?**A FEW TIDBITS ABOUT THE
USS CUSK'S NAMESAKE2**►THE SAGA OF THE LOON**AN ACCOUNTING BY BOB
WALDECK ABOUT LAUNCHING
LOON MISSILES 2**►Cusk's Missile Days**MORE MISSILE HISTORY
FROM NORM CARKEEK.....5**►SHIP'S PATCHES**PICTURES AND INFORMATION
ABOUT THE CUSK'S "MISSILE
ERA" PATCHES 4**► 2014 CUSK REUNION**A RESORT, CASINO AND
PLENTY TO SEE AND DO IN
DEADWOOD..... 7

Standish times

NEWSLETTER OF THE UNITED STATES SHIP CUSK
SS-348 SSG-348 AGSS-348

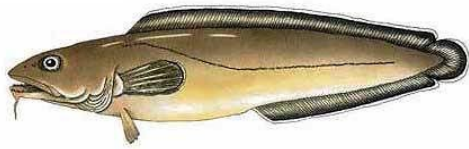
Call sign "Standish", the USS Cusk was the world's first missile submarine and with her historic first launch on February 12, 1947, the Cusk became the forerunner of today's fleet ballistic and cruise missile launching submarines. During her 24 years of service she completed 100% of every mission assigned. She was a key player in the U.S. Navy's submarine missile development program (including Regulus), and served often in the Korean, Vietnam and Cold Wars. The USS Cusk was one of only four submarines to receive the "Vietnam Commendation for Meritorious Gallantry" award.



2014 Cusk Reunion - Deadwood, South Dakota
Sunday, September 7th thru Thursday, September 11th
See page 7 for more details



What is a Cusk?



According to Wiki, "The Cusk or tusk, Brosme, is a marine Cod-

like fish in the ling family Lotidae. It is the only species in the genus Brosme. Other common names include Brismak, Brosmius, Torsk and Moonfish."

Another source said, "Though regarded as a substitute for Cod, many chefs, including James Beard, have argued that "Cusk ought to be more popular in its own right." A member of the Gadidae family, along with Cod, Haddock and Pollock, Cusk resembles its relatives through the head, but the rest of its body looks as if it was crossed with an eel. The fish is found along the western Atlantic from Newfoundland to Cape Cod. On the European side, it is caught from northern Scotland to Iceland and northern Norway. Cusk is a bottom-feeding fish, found as deep as 500 fathoms. Because Cusk don't school, most are caught by trawl as a bycatch of more highly valued species like Haddock and Cod. The remainder of the catch is landed by longliners. Market size varies from 2 to 3 pound "squirrels" brought in by longliners to 15 pounders landed by draggers.

The Cusk's flesh is white when raw and becomes an opaque white after it's been cooked. The meat is firmer and chewier than Cod. The flavor is mild and sweet, much like Cod."

Which is why the USS Cusk's first patch looked like this...



The Saga of the Loon

by Robert M. Waldeck, USS Cusk 1948 to 1950

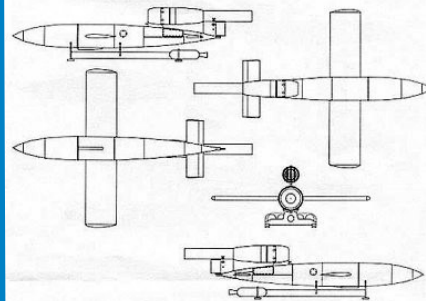
I was the first submariner to report to Derby Pro-



ject in August, 1946. This program was to use the Loon to develop a guidance system and a method of launching it, or other missiles from submarines. Derby Project was located at Point Mugu, California which was a Navy Sea Bee Base that was closed down right after the war was over. The day I reported for duty, I was introduced to Willy Fiedler, the German Scientist who developed the Loon Missile. The following day I participated in my first launch; the first of over 300 launches in close to eight years.

I do not have any pictures but in answer to a question asked recently about the Loon, I composed this "Saga of the Loon".

The Loon is a rather small missile as compared to



others such as the Regulus, which was the size of a jet fighter. The Loon was about eighteen feet long, tapered to a point at the nose and had removable

stubby wings. A long tubular metal "spar" was installed through the missile body to hold the wings in

(Continued on page 3)



Editor's Corner—Ever notice this?

Known for our pride and how deep it runs, one might ask, how did our precious "fish" evolve

into such a strange representation of that coveted symbol of our achievement? Look closely at the version on the left and compare it to the pair on the right. Okay, okay, perhaps it's minor and/or unimportant to many of you, but...well, look at the differences and see what you think.

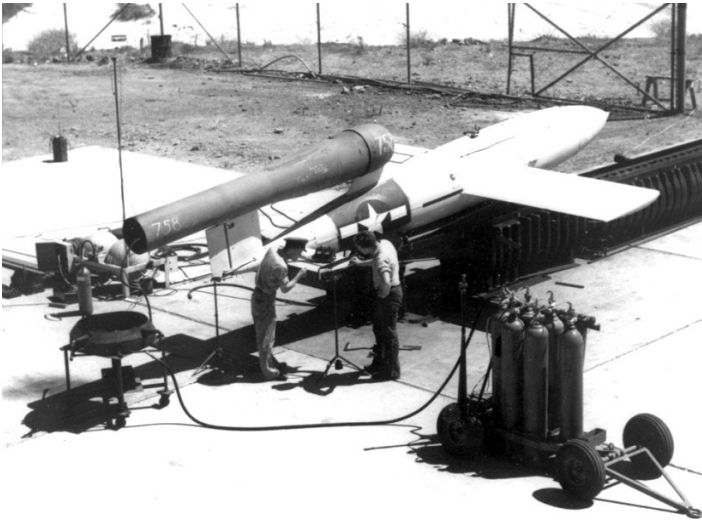
Last year I received a question via the Cusk website asking, "Why are the dolphins' mouths wide open, and what is that ring in the center?" At first I didn't know understand what he was talking about. Then I realized that he thought the bow planes were part of the dolphins, not the sub, and the "ring" he referred to was simply a poor representation of the bullnose. That got me to looking closer at other pairs of dolphins on the web, and on base where I work. I found, much to my surprise, that the dolphins on the left are rather ubiquitous. To which I must ask, how did that happen? Why does the submarine look more like a buoy than a boat? What happened to the bullnose? Why does the sail look like a waffle? And what is that ridiculous looking ring sitting on top of the bow? Anyone up for a "Ban the Bum Fish" campaign?





(Continued from page 2)

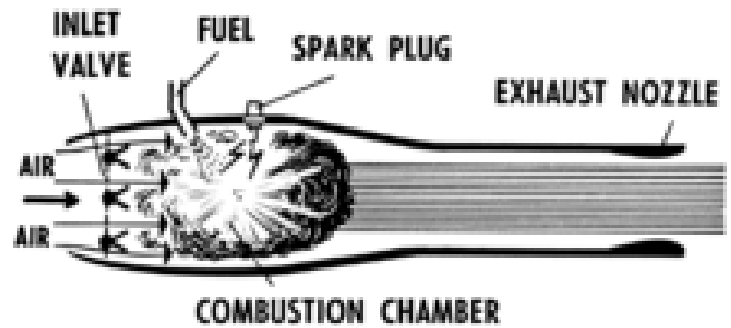
place. The tail end of the missile had less of a taper, and had a vertical fin with a rudder. It also had horizontal tail fins with elevator flaps, BUT, did not have ailerons, so it could not make banked turns. It skidded. Just behind the nose cone was the warhead, which was, as I remember, about one ton in weight. This was remarkable because the complete missile just topped three thousand pounds. Behind the warhead was the gasoline tank, which held about 90 gallons of 80 octane gasoline. Then came a circular compressed air bottle, which was used to power the



Loon Missile being tested at Pt. Mugu

elevator, rudder servos and the three gyros of the autopilot.

Now we have a complete missile, but no room for a motor. Willie Fiedler made a pulse jet engine which was mounted atop the missile and attached by a post



amidships and to the top of the tail fin. It resembled a large metal pipe, open at the rear and closed off at the front by a set of "venetian blind" vanes which were spring loaded to the closed position. The gasoline tank was pressurized by air and a pipe led from the bottom of the tank up to the engine. It led to a set of spray nozzles just behind the front vane closure and sprayed gasoline aft.

The operation of this type of engine requires exploding a mixture of gasoline and air which exited the rear of the engine. This explosion could not go forward because of the closed vanes, but the gasses then leaving from the interior of the engine caused a vacuum at the front end causing outside air pressure to open the vanes and rush into the engine, mixing with the continuous spray of gasoline, which caused a second explosion triggered by hot embers left by the first

(Continued on page 4)



HEALTH TIPS - Myths About Healthy Aging:

MYTH: Aging means declining health and/or disability.

Fact: There are some diseases that become more common as we age. However, getting older does not automatically mean poor health or that you will be confined to a walker or wheelchair. Plenty of older adults enjoy vigorous health, often better than many younger people. Preventive measures like healthy eating, exercising, and managing stress can help reduce the risk of chronic disease or injuries later in life.

MYTH: Memory loss is an inevitable part of aging.

Fact: As you age, you may eventually notice you don't remember things as easily as in the past, or memories may start to take a little longer to retrieve. However, significant memory loss is not an inevitable result of aging. Brain training and new learning can occur at any age and there are many things you can do to keep your memory sharp. The sooner you start, the sooner you'll reap the benefits.

MYTH: You can't teach an old dog new tricks.

Fact: One of the more damaging myths of aging is that after a certain age, you just won't be able to try anything new or contribute things anymore. The opposite is true. Middle aged and older adults are just as capable of learning new things and thriving in new environments, plus they have the wisdom that comes with life experience. If you believe in and have confidence in yourself, you are setting up a positive environment for change no matter what your age.



(Continued from page 3)

explosion. By designing the diameter and length of the engine "pipe" it resonated at 50 cycles per sec-



Cusk crew on day before the first launch, 12 February 1947

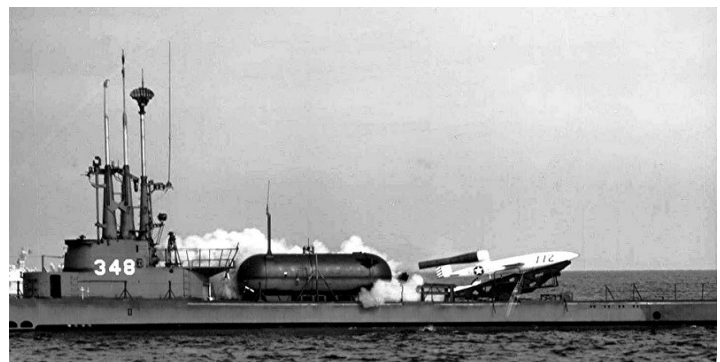
ond. Each explosion sounded like a 5 inch gun going off. When this occurs 50 times a second one MUST wear ear protection. Since nobody in their right mind would light a match to start the engine, a sparkplug was mounted on top, near the front end of the engine (which we called the stovepipe). When ignition took place the sparkplug was no longer needed and could be shut off.

The thrust was not strong enough to get the missile up to flying speed, so a means of launching had to be designed. The Germans used steam powered catapults atop the cliffs of northern France which did not

get the missile quite up to flying speed. When launched, the altitude of the cliffs allowed the missile to gain flying speed before it would have landed in the ocean.

At point Mugu we used a sea level black powder catapult, which increased the launch speed just enough to get flying. Even then many of them made it to the beach waves of the Pacific Ocean.

How did we get the Loon? We made them. Crossly and Ford made them from a complete set of plans stuffed into one of the Loon missiles that were fired at Great Britain. This was done by somebody in Germany who had access to their program and disabled the firing mechanism of the warhead. We had over 300 built and ready to ship to England when the war ended in Europe. We used them to develop radar guidance systems and rocket launched sleds for future missile like Regulus.



Ready for launch, 1951

USS Cusk Ship's Patches: Post Missile Era - 1958 to 1969



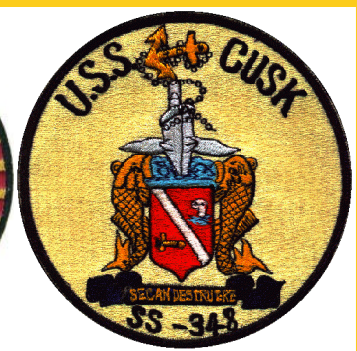
Photo representation of the "Rig For Ultra Quiet" patch created in Yokosuka, Japan in 1960. This was the first of three patches without a Cusk fish or a missile depicted.



Known as the "Aloha Patch", it was used from 1962 to 1966 after the Cusk was re-designated "SS" and all missile guidance equipment was removed. Included for the first time was the Latin, "Cum Honoris Servarius" or Serving with Honor".



This tongue-in-cheek patch could be found on many foul weather jackets. It represented the Cusk's service in Vietnam on her last three West Pacs.



The Cusk's last patch in use from 1966 to her decommissioning in 1969. This patch had the Latin slogan "Secan Destruere" which roughly translated means "Cut and Destroy".



The Cusk's Missile Days

by Norm Carkeek, USS Cusk, 1949 to 1950

To start, the LOON received its name from a duck-like water bird that mostly inhabits the lakes located in our northern states. It flies above the water until it spies a food source in the water, wherein it folds its wings causing it to lose altitude and crash into the lake. On its descent, it emits a sound much like a crazy man's laugh. That is where the saying "You're as crazy as a Loon!" comes from.



Parade Magazine of a Cusk Launch, 1953

In many respects our bird was very much like the Loon, except that we controlled the folding of the wings causing it to crash. Its target was a pre-determined area where we thought the enemy was occupying.

Our bird was an almost exact copy of the German V-1 rocket fired at the British by the Nazi's during WWII. In this instance the Germans knew the location of their target. They knew the distance and the direction. They filled the bird with enough fuel to reach the target, run out of fuel, then crash somewhere near where they aimed. Because the missile was nothing more than a flying bomb, when it crashed, it did cause a lot of damage. The British used to say they knew they were OK as long as they heard the engine running on the missile. Fear would show up when the engine stopped. The British did not have a lot of luck intercepting the bird; the bird's overall length was near 21 feet, with a wing span of approximately 17 feet. Also the Germans did not guide the missile, but simply aimed it in the general direction of the target. The motivation power was a Pulse Jet Engine.

If you take a 24 inch tube and run it back about 2 feet, then reduce the size of the tube down to 12

inches, a Venturi is formed, causing the contents of the tube to compress. In the case of the pulse jet, a series of vertical vanes are located at the opening of the tube that open and close rapidly. When starting the engine, compressed air mixed with fuel is forced into the open vanes that allows the mixture to pass into the tube, the vanes close and the fuel mixture is compressed when it reaches the Venturi, a constant spark ignites the mixture causing the suction of air/fuel mixture to flow into the vanes which open again giving it a supply of fuel. At the same time the previously ignited fuel becomes exhaust and exits at the small end of the tube causing thrust. All of this occurs at the rate of about 41 times a second. There is no control on how fast it will pulse, which means there is no way to have complete control over the speed of the bird once it is in flight.

The next problem is to get the bird into flight, as the initial thrust and short runway (ramp) will not allow the bird to leave the starting point. This was solved by building a carriage that the bird would sit upon along with some Jet Assist Take Off (JATO) rockets. The JATO rockets provided enough thrust to cause the bird to rapidly move down the ramp and attain enough speed and angle to become airborne.

Once airborne, the carriage falls away and drops into the ocean. The carriage is primarily made of Magnesium which dissolves in salt water. If all goes well, the missile team takes control of the bird and directs it to its target. The team could control direction, and altitude, and send it crashing down when it reached the enemy. But, what about the gliding power of the missile and how hard would it be to hit the target? Some genius (probably a CPO) figured that was easy. Just blow the wings off when over the target.

Now to the shipyards...at this time a steel hanger was installed just aft of the topside superstructure. A long ramp running from the hanger to just forward of the after engine room hatch was located. Note, the after battery hatch was removed because of the loca-



Movie about the Cusk, 1950

(Continued on page 6)



(Continued from page 5)

tion of the hanger. The electronic guidance equipment was installed at this time.

Now we were ready to send this creature of de-



A loon explodes during takeoff, 1951

struction on its merry way. Off to Port Hueneme, California. Port Hueneme is a major point of supply debarkations. We would tie up to a pier and a crane would load the bird on the tracks. We would remove the wings, and push the bird into its hanger. The wings came off easily by utilizing a spar that ran through the Loon to which the wings were attached. The wings and spar were stored in the hanger until it was time to launch.

We then proceeded to the launch area submerged. When ready, we went to "Battle Stations Missile", surfaced and began the exercise. There was a missile crew, designated crew members working in unison to bring the bird out of the hanger and prepare it for launch. The spar came out and was installed on the bird (a fairly quick operation), and then the wings were mounted. At this point most of the crew went below.

The remaining crew members had specific and final arrangement jobs. At this point the explosives were installed to blow the wings off when over target. Swish Saunders (COB), and Chief Gunners Mate usually handled this job.

It was my job to charge the air tanks which ran the gyroscopes mounted in the bird. Hook up the wiring for the ignition of the JATO rockets, next, start the engine (after the crew had gone below decks). The only other man topside at this point was the talker (sound powered phones from topside to Conning Tower), and located on the after cigarette deck overlooking the launching platform.

When all was ready I passed the word to the talker, he then told me to arm the four JATO rockets. We were now ready to make the launch, and this was up to the Skipper, who was in the conning tower. I then went below followed by the Talker.

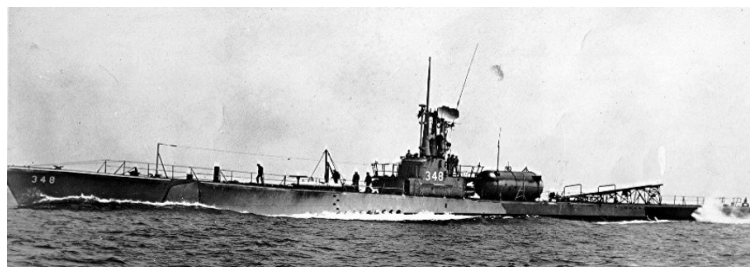
The sound of the Pulse Jet Engine coming through the hull was interesting. It was easy to understand the British calling the missile the "Buzz Bomb". However, the noise was deafening while working with it topside. The original Loon was launched down a fairly long ramp, pushed off by 4 small JATO rockets.

In 1947, one or more of the rockets exploded while in launch phase, setting the deck on fire, mangling the launching ramp and damaging the after torpedo room hatch. I talked with Swish Saunders about the damage, and he said the bird hit the hatch, did not blow it off, but unseated it. When the Skipper ordered the boat to dive, the Christmas tree was reading green on all hatches. But, because the hatch was un-seated sea water did come pouring into the torpedo room. The surfacing alarm was immediately sounded, and the boat surfaced.

In 1951 we modified the launching ramp. We replaced the long ramp with a pivoting ramp, so the bird would be launched either from the port or starboard side. Also, the four rockets were replaced by a single and much larger JATO. The rocket would virtually lift the bird from the ramp without having to travel any great distance. This system seemed to work quite well, and relieved the danger to the topside superstructure in the event of a catastrophic failure.

I enjoyed two occasions when I was placed in the hanger, and was able to prep the bird while the boat came into position for surfacing and finally launching the bird. It was interesting in that there was no air supply to the hanger, nor any escape procedures. The only lights were a couple of battle lanterns. But, it did save time and speeded up the launch procedure.

If the Loon had been a nuclear weapon, blowing the wings off when over the target would have been a direct hit within one square mile.



USS Cusk at sea with new hanger and launch ramp, 1949



2014 Cusk Reunion - September 7 to 11 The Lodge at Deadwood Gaming Resort Deadwood, South Dakota



Attendees will stay at the Lodge at Deadwood. The Lodge opened in 2009 and features:

- A luxurious mountain resort with 140 exceptional guest rooms and suites
- Over 20,000 square feet of meeting and convention space
- Free wireless internet access throughout the entire facility
- The Deadwood Grille; Deadwood's finest dining; casual fine dining with a Western flare
- Oggie's Sports Bar famous for eclectic spirits and appetizers; pool, darts, and 12 flat screen televisions
- Las Vegas style casino with 260 state-of-the-art slots, 13 table games and Rounder's Poker Room
- Fitness Center
- Indoor water play land
- Non-smoking facility
- Gift Shop
- Outdoor Lounging Area with fire Pit
- Complimentary on site parking
- Transportation to Main Street Deadwood



Reservations: 877-DWD-LODG (877-393-5634)

Rooms: \$89.00 per night (plus tax)



Getting There:

Travelling from the East: I-90 take Exit 17 and turn right (South) onto Hwy 85. Drive 8 miles and at the top of the hill you will see The Lodge at Deadwood is on your right.

Travelling from the West: Same directions off I-90 and Exit 17.

Reunion Agenda - In progress. Details will be in the next Cusk Newsletter and posted soon on the Cusk webpage (www.usscusk.com)

Contact Information:

Delmer L. Wetering
27025 465th Ave
Tea, South Dakota 57064

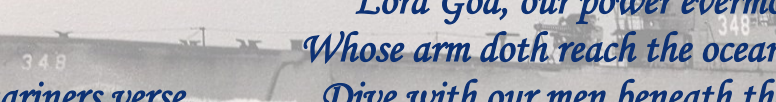
Email: dswetering@aol.com



411' 9 & 3/4"



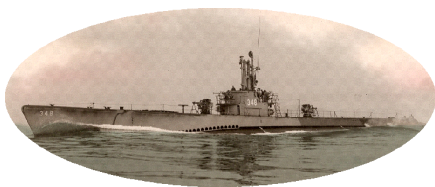
<u>Shipmate</u>	<u>Rank</u>	<u>Years aboard Cusk</u>	<u>Departed</u>
Gregory Czech	LCDR	1962 to 1964	6 April 2013
Lyle Smith	EM2(SS)	1955 to 1956	2013
DeWayne Mobley			15 August 2012
Clay Gatlin	EN2(SS)	1951 to 1954	6 September 2012
Gordon Stafford	TM2(SS)	1948 to 1949	28 June 2012
Donald Call	CS2(SS)	1953 to 1954	22 February 2012
Charles Rutherford	EN1(SS)	1950	9 January 2012
Frank Vogel	IC3(SS)	1963 to 1966	6 January 2012
Jack Kimball	SOS1(SS)	1961 to 1966	20 August 2011



*Submariners verse
of the "Navy Hymn"*

*Lord God, our power evermore,
Whose arm doth reach the ocean floor,
Dive with our men beneath the sea;
Traverse the depths protectively.
O hear us when we pray, and keep
Them safe from peril in the deep*

1. How many different ways can you pump water from Forward Trim to After Trim Tank?
2. What is the name of the material packed around the shafts to prevent leaking? Lignum Vitae
3. What is the exact length of the Cusk? 311' 9 & 3/4"
4. Where are the keys to the torpedo tube interlocks stored?



1635 Sea Shell Drive
Merritt Island, Florida 32952

