

JUNE 2017

THE SUBMARINE REVIEW



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FROM THE PRESIDENT

The recently completed Navy Force Structure Assessment concluded that the United States needs more, and more capable, ships and aircraft and reaffirmed the value of a robust Navy as a critical component of peace and stability in an unstable and unpredictable world. In particular, the need for more attack submarines has been specifically highlighted by Senior Navy leaders in testimony before Congress and there is broad consensus that the replacement for the OHIO Class strategic ballistic missile submarines, the COLUMBIA Class, is our nation's top military acquisition priority. The Navy's thirty year ship building plan reflects these priorities and the nation's industrial base is fully engaged to meet the increased demand for submarines.

The performance of the men and women who operate and maintain our submarines in every maritime theater has been superb. Responding to the myriad demands of our forward deployed combatant commanders, these submariners, and the ships they operate, meet the highest standards, employing technology and executing tactics responding to a diverse and changing set of undersea challenges. They demonstrate their value to the fleet daily, around the world.

After some uncertainty created by Continuous Resolutions during the first half of the fiscal year, the FY2017 DoD budget provides solid support for submarine programs. This budget sustains the VIRGINIA Class Submarine build rate of two ships per year and ensures that funding is in place to execute work needed to support full production of COLUMBIA Class Submarines in 2021. While challenges remain in executing this aggressive plan, *Team Submarine* is focused and energized and on pace to succeed. As the FY2018 DoD budget works its way through Congress, the value and capability of our Submarine Force is well understood and the sustained superior execution of Submarine Programs and the outstanding performance of our submarines around the world is greatly appreciated.

These points were highlighted and emphasized by our Navy and Submarine Force leadership during Naval Submarine League Corporate Member Recognition in April and addressed further by several of our speakers during the Submarine Technology Symposium, “Delivering a Spectrum of Effects from Under the Sea”, held at the Johns Hopkins University Applied Physics Laboratory in May.

This year’s History Seminar will focus on attack submarine operations during the Cold War and will be held on 31 October 2017, the day before the Annual Submarine League Symposium which will be held at a new venue, the Hyatt Regency Crystal City, on 1 - 2 November 2017.

Your Naval Submarine League is the professional organization of Submarine Force advocates supporting the US Submarine Force and we have an ongoing program to increase membership within the active duty and retired Navy community as well as within the submarine industrial base and among Submarine Force supporters. I ask each of you to invite friends and associates to join the Naval Submarine League and to participate in Naval Submarine League activities. Together, we can make a difference.

THE SUBMARINE REVIEW is widely distributed throughout the Submarine Force, within the industrial base, and in Congress and it also is available on line. Your feedback and contributions to the Editor are appreciated and I hope that you will continue to provide comments, articles, and letters when you have something to report.

Finally, the Naval Submarine League website recently has been updated and is a resource for all members. Your feedback on how well it supports you would be appreciated.

I hope you enjoy the summer and I look forward to seeing you all during the History Seminar and Annual Symposium this Fall.

As always, please keep the men and women serving our country in uniform in your thoughts and prayers as they work for peace and stability in trying times.

John B. Padgett III
President



EDITOR'S COMMENTS

This issue leads off with two presentations from the 2016 NSL Symposium, first that of VADM Bob Burke who spoke on the subject of the Navy's personnel programs and how they are being molded to support CNO Richardson's *Design for Maintaining Maritime Superiority*. Next, we have the presentation by SUBPAC FORCE Master Chief, Paul Davenport, who spoke on the highlights of the past year from his vantage point in Pearl Harbor and their submarines. These presentations were not included in the previous issue of the *REVIEW* because we simply ran out of room.

The rest of this issue includes a broad variety of articles. They range from current issues such as an OpEd piece from the *Wall Street Journal* on the subject of the requirement to upgrade the Nuclear Triad and an excerpt from Mr. Ron O'Rourke's current Congressional Research Service report on *Navy Force Structure and Shipbuilding Plans* to several excellent historical accounts and essays. The WSJ article, written by eight former commanders of STRATCOM, is being re-printed because of its importance and to ensure this viewpoint is seen by our membership. Among our other articles, we have the pleasure of including a couple of interesting anecdotes about two of our past leaders in the submarine community, Admirals Rickover and McKee, as well as a good sea story by VADM Marmaduke G. "Duke" Bayne, taken from the Oral History collection of the Naval Historical Foundation.

This past December we observed the 75th anniversary of the attack on Pearl Harbor. RADM Jerry Ellis, USN (Ret) led a commemoration on the morning of 7 December 2016 for an assembly at Discovery Park in Sacramento, CA. His moving remarks are included herein. In addition, we are happy to have an article written by the Editor of the SubVets national organization, the *United States Submarine Veterans, Inc. (USSVI)*, which should serve to introduce those of you who may like to learn a little more about their organization. Chuck Emmett, the Editor of *The American Submariner*, and I have agreed to publish articles from

our respective publications, so you can expect to see additional SubVets' articles in the future.

Again, referring to CNO Richardson, as probably most of you are aware, he is a strong advocate of studying our history. We published an article last year by one of our submariners, LCDR Joel Holwitt, who holds a Ph.D. in History. He provided a good reading list and we have received another excellent set of suggestions from CAPT Tim Wolters, USNR, who also holds his Doctorate in History. His article, which is included in this issue, gives another great set of suggested readings on submarine operations, leaders, and other related matters and I hope that you will take advantage of these great recommendations.

We are fortunate to have a very high quality of material in this issue. There are several other articles and essays, including two excellent book reviews, which I have not been able to cover in this brief message, so I trust that you will take the time to enjoy and benefit from each of them.

I have valued the talented support of Kristin Bernacchi, my Assistant Editor. I thank her and send best wishes as she accompanies her husband, Mike, to his new assignment as Commander of the Recruit Training Command, Great Lakes.

Finally, I ask you to let me know your thoughts and ideas about how we are doing and any suggestions you may have for improvements. My e-mail address is editor@navalsubleague.org.

Good hunting,
Mike Hewitt
Editor



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FEATURES


34TH ANNUAL SYMPOSIUM

**VICE ADMIRAL ROBERT BURKE, USN
CHIEF OF NAVAL PERSONNEL**

OCTOBER 27, 2016

Thank you, sir. Good afternoon, everyone, Admiral Tofalo, Admiral Roegge, Admiral Merz, a lot of my former bosses out there as well, and friends and shipmates. It's really good to be here at the 34th Naval Submarine League symposium. It's especially unique, I think, to be here talking about our Navy personnel situation from the perspective of the job I'm in right now. Frankly, having been in the personnel business a number of times before, I think the Submarine Force does it particularly well. I won't be bashful about taking the stuff that I was taught in the Submarine Force and applying it into the Navy writ large wherever it makes sense.

The CNO, I think last night, outlined his intent with *A Design for Maintaining Maritime Superiority*. The Gold Line of Effort is all about our people; our sailors, both active and reserve component; our Navy civilians, which are an absolutely essential component to our success as a force; and also our families. So it's a privilege to be here to talk to you about The Gold Line of Effort, and I'm going to drill down into certain aspects of that which I think will focus minds.



Gold LOE: *Strengthen our Navy Team for the Future*

We are one Navy Team - comprised of a diverse mix of active duty and reserve Sailors, Navy Civilians, and our families - with a history of service, sacrifice and success. We will build on this history to create a climate of operational excellence that will keep us ready to prevail in all future challenges.

1. Aggressively pursue implementation of the core tenets of the "Sailor 2025" program - fully integrated and transparent data and analytics, increased career choice and flexibility, expanded family support, tailored learning.
2. Accelerate "Sailor 2025" efforts to leverage information technology to enhance personnel system and training modernization efforts.
3. Strengthen and broaden leadership development programs to renew and reinforce the Navy Team's dedication to the naval profession. Leader development will be fleet-centered and will begin early in our careers, focusing on character and commitment to Navy core values. Character and leadership will be rewarded through challenging assignments and advancement.
4. Strengthen organizational integrity by balancing administrative requirements with the benefits gained from the time spent. The goal will be to return more time to leaders and empower them to develop their teams.
5. Strengthen the role of Navy leaders in leading and managing civilian professionals as key contributors to the mission effectiveness of our Navy Team.

The Gold Line of Effort, again, is about that one Navy team comprised of a diverse mix that I just talked about. This whole line of effort is about actively taking a leadership role, a role as a force, a role as a Navy, and leveraging all those components of our diverse Navy team. The five tasks associated with it—the first two—it's a bit of an eye chart, I apologize. The first two, though, are really centered around delivering on Sailor 2025, which I talk about in some detail, and then putting the enabling foundations in place to make Sailor 2025 sustainable throughout the long-haul. I'll talk a little bit more about why that's so critical to our Navy in today's personnel talent competition market, if you will.

The last three tasks are getting at those other aspects that aren't necessarily things that we've traditionally thought about in the naval personnel stovepipe, but getting at broadening our efforts towards improving everything we do with respect to the broader Navy team. The third one is strengthen and broaden the leader development. The CNO touched on it last night in his remarks.

We do a phenomenal job throughout the Navy touching on the technical and tactical competence of our war fighters. We have

community-specific and Navy-specific schools. We talk about leadership and leader development in the most specific terms and the most general terms. We have very formal mechanisms to help an individual grow in those areas of leader development.

The one area that we have sort of assumed and taken for granted, though, is this idea of an individual's character. In today's age, where we're going to be making decisions faster and faster, and having to delegate responsibility and authority down to the lowest levels, it's important that our leaders have that character to make the right decision even when no one is looking, all the time, so as not to lose the trust and confidence of the American public.

So the spin on things right now, the new effort that's behind this, is working on formalizing that character development piece. Again, we do a phenomenal job of character development at the initial Sailorization process, whether that's the Recruit Training Command at Great Lakes or the Naval Academy or NROTC or OCS programs. But it's sort of a onetime inoculation. We don't revisit it enough and we don't revisit it with any measurable effect.

So the War College, Navy leadership and ethics, continues up at Newport and in the Naval Academy. NSTC runs our ROTC units, and my organization—we're jointly working on what that curriculum would look like; putting some tools in the hands of our leaders to help deliberately think about and talk about character development: shipboard, at-sea, in operational environments, as well as at those touch points in the leader courses. And that's consistent with the discussions that I think you've already touched upon with the whole idea of fleet-centered leader development.

There are going to be some Navy-wide principles that apply, no matter what warfare designator or community an enlisted leader might be in. And then there are going to be very specific things that you want to touch on due to the unique operating considerations of an individual community like the Submarine Force. So that's what task number three is about.

Task number four is all about really empowering our CO's. There are a whole lot of specific examples in Sailor 2025 that are related to pushing personnel actions down to the lowest level that

we can reasonably delegate and ensure success. But it's also about doing things like reducing administrative distractions.

I don't know if any of you have read the Army War College study on setting ourselves up for success and not institutionalizing processes that unintentionally incentivize the wrong behaviors, taking the short cuts, things of that nature. We did a survey of the Navy-wide processes that were cumbersome, and just recently repeated it. I'm not proud to say that the top 15 were all mine in the personnel world.


There was everything from frustration to logging onto our web sites to filling out form X, just fill in the blank there. A lot of that stuff was recognized well before that survey and is being worked in Sailor 2025, and we're working hard to remove those administrative distractions. The broader effort, though, is one that we've been working on as a Navy for a while. Admiral Richardson worked it for a while when he was at Naval Reactors. We still haven't really gotten to the fundamental approach of getting meaningful input Navy-wide that we can go out and act upon. So we'll be taking some turns on that as well.

Task number five is really reinvigorating our efforts to manage and grow and nurture our civilian workforce. Our Navy civilian workforce is very diverse in terms of the skills that they bring to the table, and no two command's civilian workforces look alike. The folks at LNR are going to look very different from the folks at Pearl Harbor Naval Shipyard. They're just a completely different composition of skills and cross-section of the labor market. The task is really about Navy leaders that have civilians working for them taking that active role in everything from career management, educational and developmental opportunities, things that you take for granted if you're wearing a uniform: career management, progressive assignments, opportunities for leadership, from the bottom all the way to the top in terms of what you should expect for a Navy civilian career coming in the front gate.

Because those work forces are so different, though, we really can't write a one size fits all strategy. So the CNO just signed out, about a week and a half ago, what we're calling a Civilian

Strategic Workforce Framework. Much like the design, it's principles, it's a way of thinking about how you go after solutions. It's meant to empower the right folks. In this case, with the Civilian Strategic Workforce Framework, it's about empowering the planning officers that own those civilians into writing their own strategy, and then giving them a couple of focal points and a couple of advisory boards. I will be the executive secretary for the CNO, taking those inputs from all the civilian workforce managers across the Navy. They'll write their own strategies. We'll be a forcing function. The unique challenge for me, as the Chief of Naval Personnel, I have absolutely no authority or responsibility associated with Navy civilians. It's all retained within the SECNAV directorates. But, we can be a forcing function working with those organizations to kind of close up the gaps that exist there.

So those are the five tasks associated with it. If you read the top statement, we talk a lot about the families in there. And you'll notice in those tasks there aren't a lot directed at the families. We've begun to address that within Sailor 2025, but I think in version 2.0 of the design, when we revise it here at the beginning of the year, we're going to add some specific tasks to get at the families. We've begun to work some focus groups with spouse associations and things like that to find out where we can really go out and work some things and make a difference.

 <h2 style="text-align: right;">Sailor 2025 Progress to Date</h2>		
<p>Personnel System Modernization</p> <ul style="list-style-type: none"> ☑ Meritorious Advancement Process ☑ Statutory Promotion Board Convening Language Independent of Zone and Timing ☑ Remove zone stamps from Board View ☑ Fleet Scholar Education Program (FSEP) ☑ SECNAV Tours with Industry ☑ Career Intermission Program (CIP) Remove Restrictions ☑ Detailing Marketplace (P) ☑ Expand CIP (L) ☑ Performance Evaluation System ☑ Performance-based Bonus (L) ☑ Merit Promotion Reorder of Lineal Numbers (L) ☑ Rating Modernization Plan <p>Increased Career Choice/Flexibility</p>	<p>Ready, Relevant Learning</p> <ul style="list-style-type: none"> ☑ Replace Requirement for Certain GMT Sessions ☑ RRL Governance ☑ RRL Planning Teams ☑ DEP Training Pilot with AC Sailors ☑ RRL Rating Reviews ☑ Block Learning Design ☑ Expand Full-time Education Opportunities ☑ Fully Mature eSailor into an Electronic Performance Device ☑ Modernize GMT Delivery ☑ Modernize Advancement Exams to Support Fleet Involvement in Advancement and Promotion <p>High Velocity, Tailored Learning</p>	<p>Enriched Culture</p> <ul style="list-style-type: none"> ☑ Increase Female Enlisted Accessions ☑ Expand Maternity Leave ☑ Increase USNA/ROTC Female Technical Accessions ☑ Dual Navy Co-Location Policy ☑ Expand Fitness Center Hours ☑ 24/7 Fitness Center Hours (P) ☑ PFA Improvements ☑ Establish Office of Talent Optimization ☑ Improve Nutrition Awareness ☑ Target and Cultivate Female STEM Talent ☑ Exit Surveys ☑ Expand CDC hours ☑ Paternity, Adoption Policy (L) ☑ Lateral Entry (L) <p>Expanded Sailor/Family Support</p>

Another eye chart here, not enough for you to read, but really just trying to impress upon you how much we’ve already done on Sailor 2025. That’s the name for the initiative that started out under Admiral Moran in his Talent Management moniker. We sort of relabeled it and re-thought a lot of these things. You’ve been reading about individual components in Navy Times, but it has only been in the last couple months that we’ve been talking about this in the context of Sailor 2025.

That is a living, breathing set of initiatives. It’s 43 different initiatives today. We’re getting a lot of input from the fleet. We’re adding things to it. We’re killing the ones that don’t pan out and not putting any further effort into it, and we’re expanding and evolving the ones that are showing a return on investment very quickly.

We’re using the principle of high velocity learning consistent with the design, and are not trying to polish the cannonball and make it perfect the first time out. We mitigate the risk, get it out there, find out what worked and didn’t work, and adjust it on the next iteration, making sure that we’re mitigating the risk properly.

That causes some conversations when you roll these things out. The Modernization Plan comes to mind, and we'll talk a little bit more in detail about that.

Fundamentally, we talk about Millennials today and what they want in the workforce and what it's going to take to retain them. But taking a step back from the individual desires, if you think of the Navy from the corporate sense and what our challenges are in terms of human resources for the future, we're about 335,000 people, active duty, in the Navy today. Two hundred and sixty-six thousand of those folks have come into the Navy since 9/11.

We're approaching a majority of Millennials. We know that Millennials demand to be involved in processes. They want transparency, they want choices, and they want flexibility. So Sailor 2025 has that in mind.

But there's an underlying operational imperative that it's important to keep in mind. Some other numbers to throw at you: Today we bring 40,000 people into the Navy every year. I send 40,000 people home every year. I do 90,000 PCS moves every year. That's unsustainable, because fundamentally we haven't changed military personnel system, the Navy's personnel system, from the time of the draft.

When the All-Volunteer Force was cheap, we could do that. Money is not as plentiful as it used to be, nor do we think throwing money at the problem is necessarily going to be part of the solution. We know we're at sort of the meat of the curve in terms such as you can double certain SRBs for certain rates and it would have no impact on retention.

So Sailor 2025 is built to do a lot of those different things. Some of the things that are in there are really aimed at taking that very wide based pyramid and narrowing the base. Let's bring in fewer people each year. Let's keep them around longer. Let's give them choices to move around so that we don't have to reinvest in the Sailorization, and sort of the upfront training investment that we have to make, and leverage the talent for as long as we reasonably can, even if that means multiple career shifts, doing things that heretofore would have been atypical or not necessarily recipes for success the way our career paths are structured today.

So that's really what we're getting at in the long-haul. The Rating Modernization Plan, which I'll talk more about in detail here, it's laid out in the Design. Our threat is changing by the second. The needs of our Navy are going to change much more rapidly in the future than they have in the past. Just because I have a mix of skills in our workforce, in the uniformed workforce in the Navy today that is able to meet those demands, it doesn't mean that tomorrow I won't need 20 new skill sets that I don't have. We're not going to be able to go out and train those folks from ground zero from the starting point, from civilians, and turn them into trained warriors in those skill sets rapidly. So the Rating Modernization Plan also has as an ulterior motive that ability to put agility into our system and repurpose our sailors to meet those rapidly evolving threats.

A couple of examples—let me just talk about one more overview piece of Sailor 2025 and then I'll get into a couple of examples I want to highlight. I really kind of broke it up into three major bins. One is modernizing the personnel system itself, and I'm not just talking about the IT, although that's an important foundational element that's going to be an enabler for this. But we're starting with the processes and policies themselves, while we also modernize the IT to support that.

The middle category there is ready relevant learning, and then the third category is the enriched culture piece. On the personnel system modernization, its things like re-looking at the way we do enlisted advancements. Let me give you an example.

We spend about \$33 million a year to bring people to Millington, Tennessee to run the chief's board. That's a lot of money. I think we've got to be smarter about how we do this.

So we're looking at ways to do that differently. It's a very important ward, taking leadership of that seniority, given the influence they have on the way the Navy moves forward. We're taking baby steps along the way, though, in terms of things that we already have the authorities for.

The Meritorious Advancement Program was one of those ones that we rolled out very quickly in 2015. We took a fraction of the overall enlisted advancement opportunities for E4s to E6s, and we

turned it over to the command triad: the COs, the XO's, the command master chiefs. We gave them some guiding principles and said, you pick who to promote.

But the goal was to not cure the ills of the advancement system, pick folks that were up against higher tenure or folks that were in over-manned ratings, but go out and find talent that was maybe stuck in traffic through our performance evaluation system that causes these sort of artificial pure rankings within individual commands. And then we graded them. After the first year, they got about a 92. Eighty percent of the CO's used the old habits that they did with the old command advancement program, but by and large folks did what we asked them to do.

The mitigation of risk there, as we rolled it out quickly, was it was only 10 percent of the advancement opportunities. The rest of the advancement was done through the Advancement Exam Program. We did over advance in four ratings, so we put some controls in place for this year, 2016, but we didn't say you couldn't advance somebody in those rates.

There was a little bit more vetting that had to go on, and that allowed us to do some throttling if we needed to. And, we expanded the number. We expanded from 10 percent to 15 percent, and we also expanded it from sea duty to shore duty. That season just closed. I don't know what the results are on that yet, but I expect it will be similarly positive. So the goal next year will be let's take it to around 25 percent of the advancement opportunity that gets turned over to the COs, XO's and command master chiefs.

When we started this the vision was let's do away with the advancement exams. Well, I'll tell you, after studying the other services' advancement programs, the Air Force and Army in particular have a merit-based commanding officer doing all the advancements for certain pay grades across the board. They've got some real problems with the little black book promotion systems and nepotism and things like that.

Our Navy-wide advancement exam program is institutional, it's bureaucratic, it's slow, but it has impeccable integrity and its objective and dependable. So maybe the right answer is a mix.

Maybe it's 50/50. I don't know what that is. We're going to continue to experiment until we find that right mix.

We took some early steps on the officer promotion front as well. We blinded the boards to promotion zones for officers. We had our first three unrestricted blind officer boards this year under those new rules, and those six boards in January picked right up to the limit we're allowed by the Secretary of Defense on below zone picks: 10 percent.

The O5 board picked zero below zone and 10 percent above zone. The O4 board picked about five and five above and below zone. I'm naturally a glass is half full guy, but I'm going to read that as the board read the precepts and chose who they thought the talent was instead of constraining themselves to some expectation that in-zone and above-zone and below-zone meant something specific.

So what we've asked for in FY '17 is the ability to pick up to 25 percent below zone, and we've asked for some other latitudes like 40 year retirements in specific cases, not writ large. So instead of O5s and O6s statutorily required to retire at 28 and 39 years of commissioned service respectively, we'd like the ability in certain cases to take that to 40. We've also asked for some ability to do sort of what we do on the enlisted side.

Today, we do this thing called the Senior Enlisted Continuation Board, which allows us to have no quota associated with the Board. The Board goes in and looks at folks that have been looked at twice for their next milestone, whatever that might be, promotions or screening. If they're in neutral or reverse, we ask them to retire.

It's low numbers each year, but what that does is that makes advancement opportunity for more talent. So we would need something like that. It's a necessary evil if we want to promote more people earlier. So it's things like that.

The Fleet Education Program is in residence education opportunities at very high caliber schools where previously we couldn't make those arrangements work. The Submarine Force has a number of officers off and running in those schools. SECNAV Tours with Industry is another one. We piloted this in 2015.



We had agreements with Amazon, FedEx and Huntington Ingalls Shipyard, and we sent officers out for tours with the tasking and reporting back quarterly and bringing industry best practices back to the Navy. This year we've expanded it to Microsoft, Apple, and about five others. So we're getting officers out and doing things out of the normal career path with the idea of helping to bring things back.

In the future we're going to roll out some electronic web-based versions of our fitness reports and evaluations. But the more significant task there is that we're going to completely overhaul fitness reports and evaluations sometime in the next year. Our system does a really good job for what we use it for today, which is to determine promotions and advancements and screening. If you understand the code and you can write and decipher in that code, and each of our tribes has a different version of that code that the boards work towards.

It doesn't help me with talent matching, though, with where to best assign people. It's got some basic things in it, but it doesn't really talk to potential in different aspects of Navy careers. So we're going to add some pieces like that.

We're going to add some more objective measures. We're going to keep the peer ranking, because that has worked for us pretty well, but we're also going to add an absolute objective ranking and there'll be some hybrid scores in there. Then we're going to add some talent matching pieces, and ultimately we want to go to merit-based pay as part of the overall compensation package.

So we're going to need some input in there as to what additional pay should this individual get. Maybe its a factor in multiples in selective re-enlistment bonuses and things like that where the CO gets to provide some direct input on, does this guy deserve a kicker or not? So tons and tons of things. I'll come back to the Rating Modernization Plan at the end and talk a little bit more about that.

The second column, Ready Relevant Learning, is really three-fold. It's training for the right sailor at the right time. The Navy

average right now is about two, two-and-a-half years, from street to fleet, to the first ship.

In the nuclear world, that's understandable, but in some of these other occupations it's not. There's a lot of inefficiency in there. Then add on the fact that many of those sailors don't use those skills in the latter part of that training until late in their first sea tour or their second sea tour, by the way the career paths are designed. So 50 percent of them leave and never use that training, so it's just a bad return on investment for the Navy.

So we're changing that. The Submarine Force did that about 10 to 15 years ago. We're getting around to doing that in the big Navy now. We're also bringing to bear some of the other tricks that the Submarine Force employed. Again, I told you I'm not shy about stealing your good ideas. But we're applying science of learning and modern technology and modern training delivery methods across the whole Navy to really get at this.

In the enrich culture pillar, there are a number of different aspects of that. I think our Navy culture is pretty rich, but there are areas that we can improve upon. One is in the area of inclusion and diversity.

The CNO just signed out this one Navy team statement a couple of weeks ago, and that really gets to the core of it. We've been talking about diversity in the Navy for a long time. Any way you want to slice and dice the metrics: race, ethnicity, gender, it doesn't matter, we're making progress. We're getting closer to being a cross-section of the country that we represent and defend.

We're doing pretty well in the promotion and nurturing and career milestones for all of those groups as well. So the next logical step is, what do you do with the gift of that diversity? Think about what that brings us. It's not just that those demographics I mentioned before, it's diversity in the way people think, the way they look at problems, the way they look at solutions, the way they talk about them, the way they approach group dynamics.

We have not yet really formalized any of the leader training or development steps that deliberately think about a) recognizing those skills in our teams; and then b) deliberately picking and

putting together our teams to maximize the effectiveness of the team based on those diverse skill sets. So consistent with those other efforts in leader development discussion I shared with you earlier, we're looking to do that, put some tools in the back pocket of our command and leadership teams and help them more deliberately think about actively including the strength that that diversity brings us.

Another area under enriched culture is the family friendly services. We're doing very well on expanding and assessing women in both the officers side and the enlisted side. The last two years we've exceeded 25 percent female enlisted accessions.

Right now the challenge there is not bunks at sea on our ships that have been converted, which is the overwhelming majority of them now, but it's getting those women into the right mixes of ratings so that we can fill all those racks at-sea. They're still tending to migrate towards occupational specialties that have been predominantly filled by women. We're actively moving them out and encouraging them and incentivizing them to go out into those other areas.

That effort has really just been going on for the last year or so. But with those increased numbers, it's going to be very important for us to retain those women. On the enlisted side, women are retained on average about five to six percent less than men. On the officers side, it's at about half that of men.

There are a number of things we continuously survey for, but the obvious driver is the fact that we're a sea-going service, family separation and the need and desire to start families and raise children. I'm not going to make any apologies for us being a sea-going service, but there are things that we can do to minimize the size of those obstacles and help and enable folks to start and raise families and still stay in the Navy. So we're moving out on those.

It is things like child development center hours. We ran pilots last year and expanded hours at three different locations and looked at the utilization rates. By the end of this year all child development centers will have those expanded hours.

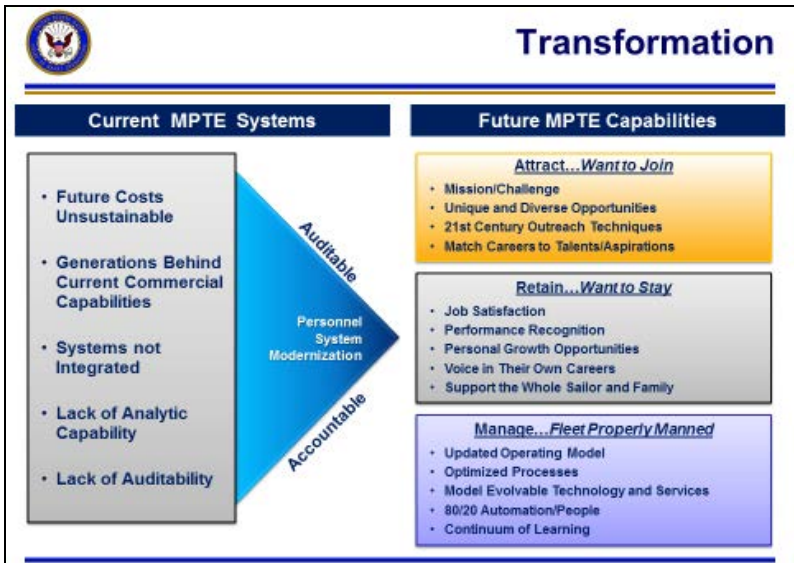
We're looking at expanding child development center capacity. One of the problems we have is that it's kind of a revolving

door of the child care providers at those centers. We've sort of hamstrung ourselves with the civilian workforce policies there, so we're looking at preferential hiring for Navy spouses, as one of those things to help get at the spouse side of the equation and also helping us with the child care thing.

So it's a number of things like that. It's the maternity leave change that went from six weeks to 12 weeks last year. Next year we think we'll have the authority to expand paternity leave and adoption leave.

Then we'll also have things that help those that want to do family planning and adjust timing, so in vitro fertilization, things like that. There's lots more to do there. We've really just begun to think of the things we need to attack. As I mentioned earlier, we've got some focus groups working towards that end.

It's always dangerous when you're the guy standing between the crowd and happy hour. I think I've got a few more minutes here, so I'd like to go on to a few other topics if I may.



As I mentioned earlier, we're attacking this in terms of addressing the policies and the underlying principles for putting all these programs together. Ultimately, though, to really get the full potential of what Sailor 2025 is all about, we've got to become big data, analytical, able to forecast things accurately, know things about what the workforce wants so I can target that compensation and say, Johnny, you want to stay in Norfolk and you want to get your graduate degree? I'm going to write a number on a piece of paper. This is going to be your paycheck for the next two years, instead of all these disparate pays and allowances that are mandated right now in the current legal system.

In doing so, if I know that about them, I can forecast that he is likely to take \$200 or \$300 a month less for that geographic stability or that promise of graduate education; or conversely, that I only need to pay him \$900 a month more to Guam instead of \$1,200 a month that I'm doing right now. So that's sort of the idea behind it. It's automating everything from our PSDs, which my organization inherited in 2012.

At the core of this, right now today, I'm the resource sponsor for 55 different disparate databases, no two of which were designed to talk with each other. Some of them were written with COBAL and FORTRAN programming language. Every time I change a pay structure or a bonus authority and it changes the way in which we want to dole out these incentives, programmers have to come in and rework the system.

Not only that, I'm maintaining these legacy server farms, physically on our premises, and they're frankly held together with bailing wire, Bondo and bubble gum, and they're not long for this planet. So we've got to do something aggressive soon and we're on a path to do that, to use commercial off the shelf, cloud-based systems, that will help us get at solving some of these problems.

The PSDs were just begging to be Lean-six Sigma'd, so we did that. Because of those databases, though—they're not bad people working there—but because of the limitations of the database your basic PSD transaction involved moving data between every spot of those databases. And at each step there's human data entry required to move it from one to the other, or

back that only occurred at 1400 so if you read the system at 1359 or 1402 you'd get a different answer. Both of them would be wrong.

It's no wonder every time you made a PCS move you'd get two months of error in your pay. That's frustrating from a sailor's point of view as a customer service thing. It's dangerous for me in terms of the guy who's physically accountable for this, because I don't have a good picture of it.

So all these things are at play here and we're working on it. But we didn't want to just make our cumbersome draft era policies and processes work faster, so we started at the top and we've been streamlining everything before we go to the ITR automation stage. We're working those in parallel.

I think we're about less than a year away from the day where a sailor goes to PSD, gets their CAC card scanned, and they're checked in, their pay is all straightened out, and that's all they have to do. Their travel claims are liquidated. That's being piloted right now. It's just a matter of the scaling and the timing and the phasing in terms of how fast we do that Navy-wide. But I think we'll have it up in volume by August of next year.

That's the idea behind our whole transformation effort. I think that's going to be incredibly important going forward as the labor market changes. Today you saw the fit and fill numbers that the Force Master Chiefs put out there. Our manning is phenomenal. That's true across the Navy right now.

Our sailors are the best sailors we've ever had by any measure. In 1990 we were paying about \$30,000 to train a sailor to get them to their first operational assignment. Today it's about \$92,000.

I don't know if that's good or bad, because I can't tell you because I can't do the analytics behind it to say where I could make more efficiencies. I think it's probably bad and there's room for improvement in there, so we're going to work hard at it when we get these analytics in place. But more to the point, the talent market could turn on us overnight. We've got to be ready for those changes.



This month we've just made our 113th consecutive month of making our recruiting mission. The other services right now, the Army, is paying *get on the bus to go to boot camp* bonuses. They're in a very different place than we are for a lot of different reasons.

But as I just told you, the market could turn on us at any moment. Our retention continues to creep up, even though unemployment is below 5.5 percent. Historically, that has never been the case. By every metric historically, recruiting and retention should have fallen through the roof for us. So we're just waiting for the hammer to drop.

We're looking at second and third order effects like wage growth for 18 to 34 year olds, and that's pretty soft right now, but it's on an exponential rise. We think we've got two to three years at best before we really start feeling some of those pressures that the other services are already feeling today. So we have to have this in place. It's an operational imperative so we can be agile and responsive and retain that best talent.

Admiral Padgett reminded me I came here to talk about the rating modernization effort. I sort of talked about the operational imperative of this in terms of our threats changing rapidly and us being in a position ourselves to be able to repurpose our sailors quickly. But there's also, kind of looking at that industrial age model, right now we're still sending hundreds of sailors home every month.

We don't do perform to serve anymore, we have this other mechanism that's a little more humane called career waypoints, but it achieves the same result for Navy community purposes. That is, in certain areas if we've got too many people there's no place to go. There's going to be no advancement opportunities, there's no billets for them to go to, there's no opportunity for them to use those skills.

So every month, agonizingly, we send a couple hundred folks home. There's a process that goes over about a nine-month period, and over that nine months they have plenty of warning that your particular rating or occupational specialty is over-manned. It's time to think about doing something else in the Navy. They get

eight looks and eight chances to transfer to something else or they're forced to separate at the end if they don't choose one of those eight opportunities that comes up.

By and large, those eight opportunities under today's system are based on where we're undermanned and where we can rapidly repurpose them, because we don't have a mechanism in place that will help define what it is that it takes so that we can efficiently and expeditiously retrain them so that they don't lose parity with their peers who now have six, eight, 10 years of operational experience advantage on them. For those that do transfer into other communities and specialties today, it's a one-way street. You can do it once and then you have to make up for that deficit of experience, most of the time individually, sometimes with the benefit of a school or two.

So in many ways it's not a fair fight and we're not arming them to succeed in that new occupation once they've transferred over. There's very little opportunity to go back, so it's not very enticing to do from the sailor's standpoint. So with Ready Relevant Learning coming online, there's the ability to very carefully, very simply, know what training is required for each step of the career path.

There are a couple of other mechanisms that we just recently put in place. One of them is called *billet-based distribution*. It's kind of one of those, why didn't we do this 50 years ago? But we just started in February coding all the enlisted billets like we do officer billets with designators and ATB sub-specialty codes.

We paint this picture of all the things that are required for a person to do that job in the officer community. We didn't do that before in the Navy. It was rank and rating and nothing else.

Today we're doing that, and we're actually subdividing it even more so that with Ready Relevant Learning you may get just enough to go out and qualify your first watch station, and then after your first deployment or during your first maintenance period, whatever it might be, you go back to a schoolhouse at the fleet concentration area. You don't have to go travel anywhere to do it. You do another one or two weeks of school and then you get the Bravo code of that Navy enlisted classification.



So progressive NECs, billet-based distribution, that's going to allow us to make this very accurate DNA print of what it would take to do a particular job at a particular time on a particular platform or job in the Navy. Now we have the same thing on the sailor's side and when they want to transition we just match up those two DNAs, the requirement versus the resume of the individual, and now we can see where are the gaps. With Ready Relevant Learning being mobile, being modular, being short, being available at fleet center areas, we fill up and make that delta up pretty quick and arm that sailor to succeed in that new rating.

I would tell you that if you really stop and think about it, of our 89 ratings that we have today, there are probably 10 or 12 that right off the top of your head you would say, it's not a stretch to think with a three week, a three month, pick your time, some amount of training, a sailor in that rank—think about fire control technicians and sonar men in submarines. They're practically doing the same job on Virginia-class submarines. And with Admiral Roegge's efforts with IUSS and leveraging sonarmen from the surface community and the aviation community, it's not a stretch to think as our platform commonality increases: PAs, Virginia-class, third-flight Arleigh Burke destroyers, there are almost identical sonar displays right now.

I would argue that the submarine sonarmen are far better trained. But the point would be that at some point you could even cross platforms. That's what this is about.

Here's the job, what it exactly entails, here's what the sailor has got, here's a bunch of tools to help make up the delta, and you can move back and forth and do other things. From the sailor's point of view, they're going to get—you look at when they go up for a detailing window right now. They've got a fixed number of jobs, fixed amount of timing based on where they are right then. If the other occupations are available to them, it's more jobs, it's more timing opportunities, it's more home ports.

Maybe it's a better advancement opportunity if the area they're moving into is perhaps undermanned or has less manning than the rate that they're in now. Maybe it's even more specialty

and incentive-based, so better pay opportunities for them. So the idea is to offer this.

I don't think it's going to be a wholesale *every sailor will do it*. It's certainly not going to be every sailor must do it, unless we get to that situation where we're in this unforeseen circumstance where I need to create four new cyber related occupations that we didn't think of yesterday until the attack happened today. That's what it's about, having those mechanisms built in so we can rapidly change.

The reason there aren't a lot of specifics in the rollout plan is, if any of you read my op-ed, we don't know yet. We're working on it and we're working the sources. We need input to make it executable, to make it work for the sailors, but also to make it work from the Navy's viewpoint to meet those operational imperatives and to meet those fleet manning needs.

So there's a lot of work to be done. How will advancement exams work? I don't know. We may pare down the number of advancement exams we do through things like Meritorious Advancement Program and things of that nature.

We're on about a five to six year journey here. The first piece was the rating name discussion because ultimately, when you get down to it and you have multiple ratings, what are you going to be called? So let's use our rank. If there's any senior enlisted folks in here, take out your ID card. What does it say on it? Does it say, ITCM? It says MCPO.

The other point that frequently comes up is we've all got our allegiances to tribes, our ratings, our departments, our divisions, our ships, our squadrons. But when we go out onto the street wearing our uniform, what does the American public see? They see a United States Navy sailor. They recognize those rank names and it resonates with the American people.

The other element of this is the civilian occupational certification piece. That's a parallel effort here. As we redefine career fields—today there are 12 career fields. I couldn't tell you what they are, except for about two of them because most of them are anachronisms. They don't really apply anymore. Nuclear and



Naval Special Warfare make a lot of sense to me. The rest of them don't.

So we're looking at redrawing those lines and career groupings so that ultimately the names of those career groupings or career fields will translate to something that the American public a) understands; and b) will perhaps give us some reciprocity in terms of credentialing on the outside. You know, we train thousands of air traffic controllers every year and they operate in some pretty intense conditions, yet they get zero credit from the FAA when they leave the Navy. We're working on that. We're working with the Department of Labor.

Many of these credentialing things are done at the state level. Even more are done at the municipal level. We're working catch-as-catch-can at that level, but we're working with the Board of Governors for reciprocity across the board on many of the jobs that would be certified at the state level.

Ultimately, I think that becomes a tremendous recruiting hook in terms of the potential for civilian occupational certification. It can be a retention hook as well because we're going to offer certification not just at the apprentice level but at the journeyman and master level as well. So we'll work that in with the right incentive mixes as we go forward. But the details are left to the student as an exercise, and I'm the student, so I've got a lot more work to do yet.

**NAVAL SUBMARINE LEAGUE
34TH ANNUAL SYMPOSIUM**

**MASTER CHIEF PAUL DAVENPORT, USN
SUBPAC COMMAND MASTER CHIEF**



Good afternoon Admirals, Retired Admirals, Captains and retired captains, I am Force Master Chief Paul Davenport for Commander Submarine Forces, US Pacific Fleet and it is my honor to have the opportunity to share with you all, some highlights from our operations in the Pacific during the previous year. I will be highlighting operations and personnel that have contributed to the success of three vital lines of effort directed in our Design to Maintain Maritime Superiority. This afternoon I'm either going to provide an efficient briefing or I may just fall off the stage.

To put that into context, when I was COB on USS GREENEVILLE I came up topside and we were doing man overboard drills. I came up and my captain, CDR Anthony



Carullo, said, “c’mon, let’s go. We’ve got to get going. We’ve got to get going”.

So after the first couple attempts at these drills we all go in the wardroom and conduct a little debrief, and he’s said, COB, when we’re topside for man overboard drills, you’ve got to move with urgency. You’ve got to move with efficiency. I need you to get up, get down and get the Sailor onboard. Every time you and your team come topside you act like you’re in outer space.

So I said, Aye, Aye, sir. I’ve got it. So we run the next man overboard drill. Keep in mind that I’ve only been onboard maybe four months, and I would refer to myself as a good proactive COB with tons of energy. I go running topside, get my team up there, we put the new Jacobs ladder overboard on the cleat aft of the sail, and I and a young Second Class Petty Officer jumped onto the Jacobs ladder and in the water we go.

Luckily, we were all connected to the safety harness and to the safety track. Of course the captain is up there like, okay, I meant go with some focus. Move with urgency, but go with the plan.

So it’s safe to say I think I’ve learned my lesson and I’ll try my best to stay upright. I am done falling overboard. So we’re moving on.

The photos and descriptions speak to the Submarine Forces commitment towards Strengthening Naval Power at and from Sea, our dedication to Achieving High Velocity Learning and how we strive to continue to Strengthen our Partnerships with our Allies.

I would like to first highlight some accomplishments from our submarines homeported in the PACNORWEST.



USS CONNECTICUT returns to operations following a shipyard period that lasted over 4 years. Connecticut entered the Shipyard in November of 2012 and due to a slew of material challenges, continuing resolution and temporary shifts in shipyard priorities the ship and shipyard struggled to close out the Overhaul period. But now, I'm pleased to tell you that she is ready. We expect Connecticut, which is already waterborne, to complete her sea trials by Thanksgiving.

This past Thursday I had the pleasure of touring the ship with the Commanding Officer, (CDR Taddiken) Chief of the Boat, (MCPO Walters) and their team and I will tell you that the crew is highly motivated and geared up to get back to normal at sea operations. It was also great to hear from the Commanding Officer as he toured me around, that the Torpedo Division was the heartbeat of the Submarine.

USS SEAWOLF completed her last deployment in the fall of 2015, now she will trade positions with the CONNECTICUT and enter the shipyard for long awaited repairs. It will be up to us all to ensure that SEAWOLF completes her overhaul in 36 months. I



can't stress the importance of having all personnel, assets and funding to make sure she gets back in the game on or ahead of schedule.

One amazing dynamic of the PACNORWEST is that RDML Tammen and his team have a TRIAD of submarine power sitting in their backyard. Not only are there fast attacks, but just across the piers sit the Navy's #1 Priority, the Trident Class Submarine, and last but certainly not least are the SSGNs that we prior Sailors like to call the Death Star of the Fleet. As you walk around the waterfront, it doesn't take you long to realize that you are in the heart of a destructive and dominant pool of submarines.



In November of last year we shared with the world the power that we project from our most stealthy and survivable leg of the Strategic TRIAD, when USS KENTUCKY launched several missiles during a Demonstration and Shakedown Operations (DASO), which was the final certification that the crew could effectively operate and maintain the weapon's systems.

Prior to the DASO, KENTUCKY completed a 40-month Engineered Refueling Overhaul (ERO) to extend the life of the submarine for another 20 years. This overhaul was completed 25 years after the keel had been laid. The CO (CDR Smith) at the time stated, "When I took command in December of 2011, the ship and the crew were tired. They desperately needed the Engineered Refueling Overhaul because it is a rebirth for both the ship and the crew. We looked at the whole process as a recommissioning."

Rear Adm. David Kriete, Commander Submarine Group Nine at the time, stated, "The process of returning a strategic deterrent asset, like KENTUCKY, back to the patrol rotation requires the hard work and dedication of many people, including not just the crew, but also civilian workforce and Sailors from Puget Sound Naval Shipyard, Trident Training Facility, Strategic Weapons Facility Pacific, Intermediate Maintenance Facility and Submarine Squadrons 17 and 19. This deployment demonstrates the teamwork among all these commands and I am extremely proud of them. Returning KENTUCKY back to patrol is also an important milestone because it reaffirms the credibility of the U.S. SSBN force with both allies and potential adversaries."

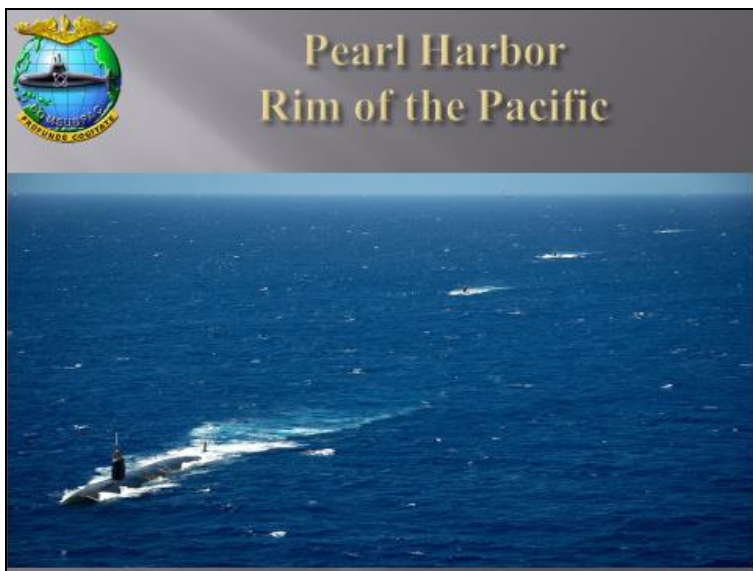




As we completed our integration of females into the Submarine Force this year we witnessed Chief Petty Officer Dominique Saavedra, assigned to USS MICHIGAN (SSGN 727) (Blue), as the first enlisted female pinned with the most prestigious warfare pin of all. She was assigned to MICHIGAN, but due to the ship being confined to the shipyard she volunteered to join the OHIO crew while forward deployed to complete the rigorous at sea requirements in order to finalize her ship's qualification.

In the photo Chief of the Boat, MCPO Jason Puckett, pinned her dolphins on her uniform. I can only imagine that this was a very special moment for Chief Saavedra and, ladies and gentlemen, she or one of her other CPO counterparts on MICHIGAN could very well develop into our first female Chief of the Boat.

Now we transition from the Great PACNORWEST to this century's Submarine Capitol of the World, Pearl Harbor.



This year's Rim of the Pacific Exercise was a great success where 40 ships and submarines representing 13 international partner nations came together and executed numerous exercises from Theatre ASW to land assault and attack. In this photo USS CHEYENNE is trailed by a Republic of Korea Chang Bogo-class submarine, USS TUCSON and USS SANTA FE as they transit in close formation.

Other significant ships that participated included; Nimitz-class aircraft carrier USS JOHN C. STENNIS and Amphibious assault ship USS AMERICA.

Just prior to RIMPAC, SUBPAC and Squadron Seven would bid farewell to a Submarine that delivered time and time again in the far reaches of the Pacific Ocean.





On May 30, 2016, Memorial Day, Mark Scott, a city councilman of Corpus Christi, Texas, addressed the Commanding Officer (CDR Petzoldt), his Officers and crew, and guests during the USS CITY OF CORPUS CHRISTI (SSN 705) decommissioning ceremony at Joint Base Pearl Harbor-Hickam.

City of Corpus Christi concluded 33 years of service as the second U.S. warship to be named after Corpus Christi, Texas.

We had a myriad of great accomplishments in our submarine force this year, which are vital to our history and our future. There were final deployments and a maiden deployment of a fast attack with female officers integrated, just to name a few.



USS BUFFALO and the Arleigh Burke-class guided-missile destroyer USS STETHEM depart Changi Naval Base for the at-sea phase of Cooperation Afloat Readiness and Training (CARAT) Singapore July 21, 2016.

This was one of many tasking's for BUFFALO as she spun her screw and silently carried her crew across the Pacific for one last voyage. She will return to Pearl prior to Christmas and then the crew will depart for decommissioning on the West Coast in Spring 2017. The Captain and his crew have been masterful at keeping this boat at the highest state of readiness prior to and during the deployment. This proves yet again how determined our Submarine Sailors and maintenance support personnel aboard our Forward deployed tenders, FRANK CABLE and EMORY S. LAND are at ensuring that we sustained independent operations in the Fifth and Seventh Fleet AORs.

Like the well-oiled machine that our supreme Navy is, we turn the page from one of the oldest submarines in our arsenal to one of our youngest as she makes her maiden voyage to the Seventh Fleet.





Oh, and did I mention there were female officers aboard?

That's right our first deployed SSN with 3 of the world's most highly trained females doing their part to navigate the waters of the Pacific and to keep the crew and the submarine safe throughout a 6 month deployment. Prior to the ship's deployment, CNP, at that time VADM Moran, and Fleet Master Chief April Beldo were able to make a short underway on USS MISSISSIPPI, in which I'm positive their experiences were nothing short of exhilarating and memorable.

Overall our Sailors are effectively employing our submarines, providing superior shore support and building a stronger team for the future Navy. They never cease to amaze me and all other leaders in the Submarine Force. And now I would like to introduce you to just a select few that received notoriety as our Shore and Sea Sailors of the Year.



To recap, the Sea and Shore Sailors of the Year (SOY) for Commander, Submarine Force U.S. Pacific Fleet (COMSUBPAC) were announced back in Feb. 11 following a week of events where 10 SOY candidates representing various commands from the Pacific submarine community competed for the distinguished title.

Machinist's Mate, Non-Nuclear, Submarine Auxiliary 1st Class Vinn Mai, from Charleston, S.C., assigned to USS BUFFALO, earned the title of COMSUBPAC 2015 Sea Sailor of the Year.

Navy Diver 1st Class Kristoffer Ilagan, from Moreno Valley, Calif., assigned to Undersea Rescue Command, earned the title of COMSUBPAC 2015 Shore Sailor of the Year.

Both Sailors represented COMSUBPAC very well in the PACIFIC Fleet SOY competition, where now Chief Ilagan was selected as the PACFLT SOY. This was the first time in over 6 years that a Sailor from the Submarine Service was selected at that level and he went on to compete against other top Sailors



throughout the Navy to try and become selected as the Chief of Naval Operations SOY.

Needless to say all 10 of these Sailors were the cream of the crop and eight of them went on to be selected as Chief Petty Officer this past summer.

As we stretch our legs across the Pacific and far past Pearl we come to find a small island in the Mariana's Island chain. Approximately 15 years ago great leaders once shared a vision. They said I've got an idea let's put fast attack submarines in a Forward Deployed Posture and we will station their crews and families in Guam. Then they snapped their fingers and presto, we have Forward Deployed Submarines.



On May 5th, USS OKLAHOMA CITY (SSN 723), entered the floating dry dock ARCO (ARDM 5) for a scheduled maintenance period. She has successfully undocked and completed crew certification, which were crucial milestones to returning her to at sea operations. SQUADRON FIFTEEN has just reported that the

boat and crew will be back in Guam prior to Thanksgiving, where the crew will receive a much needed rest period since they've been away from their homeport for eight months.

Back about 14 to 15 years ago when our top commanders in the Navy thought up this idea of forward deployed submarines, they never knew it would have opportunities to grow more legs, but on the 1st of July, SEVENTHFLT, COMSUBPAC, and GROUP 7 Commanders along with Squadron Fifteen and families welcomed USS TOPEKA to Guam as they broke up the crowd of three submarines and made Guam their homeport.

Topeka had just completed an 18 month engineering refueling and overhaul and a change of homeport.

As our century grows older and we look back 25 years you would think someone in a comfortable office was sitting around throwing darts bearing names of submarines at a large map of the world, because our submarines, their crews, families and the shore support personnel have seen some submarines like TOPEKA, CHICAGO, CORPUS CHRISTI and HOUSTON change homeports more than three times. The fact that we can do this time and time again and still keep our Sailors and their families happy are a direct result of smart and compassionate leaders such as those at Squadron Fifteen that become creative and innovate new ways to communicate with and support our Sailors and their families.





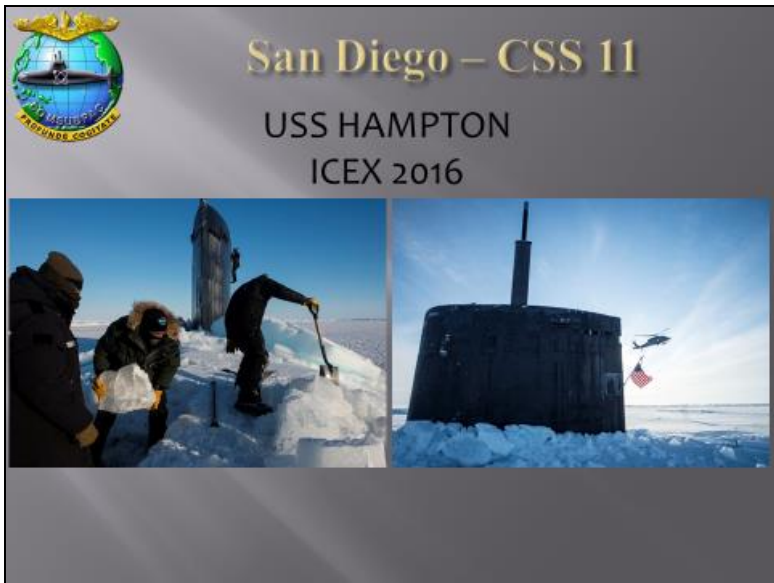
They have redesigned Indoctrination processes to include; Ombudsman teams working with Sailors and their families to create a check-in workbook that covers the basics for new arrivals to Guam. Squadron Fifteen, Ombudsmen and Family Fleet Service Center staffs are committed to ensuring quality care is provided and they are determined to make their ‘1st Fifteen’ days on island enjoyable and smooth as they transition from across the Pacific Ocean.

Partnered with COMSUBPAC we have been able to produce great products such as *Go Guam* initiative that continues to grow. There are great informative videos that are published from the great work of Sondra Rodriguez (Booz Allen Hamilton contractor), and the Defense Media Activity/Armed Forces Network in Guam. These videos have been critical in educating Sailors and families and civilian employees and contractors about the opportunities in Guam and they have answered the mail on the myths associated with being stationed in Guam.

Recently the Go Guam initiative expanded to open forums where personnel could share their experiences, ask questions and bring up concerns to the Submarine Force, Squadron and Regional Commanders.

The Squadron teamed with MWR has also made improvements to infrastructure in Guam by utilizing TAD personnel to fix up the track and other facilities on Polaris Point.

As we wrap up our brief tour around the Pacific we head back east until we get to the finest Submarine Squadron in the Navy. Ok, I apologize that might be somewhat bias.

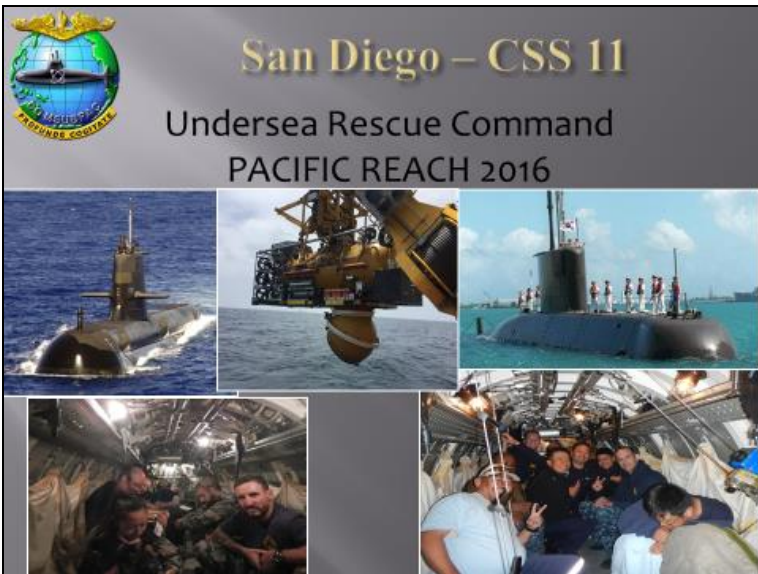


In March 2016 USS HAMPTON surfaced at the North Pole during ICEX 2016. HAMPTON had just returned from a Western Pacific Deployment 4 month prior to conducting ICEX. Might I add that this was the second time that I personally witnessed Hampton rinse and repeat this high tempo scenario in 2014 and again in 2016. Following ICEX she completed a change of



homeport to commence an 18 month Engineering Refueling and Overhaul Period. During the ICEX the Honorable Ray Maybus came aboard the submarine and was underway for a total of 6 days. Yet another awesome experience that he would never forget during his tenure as our SECNAV.

In the past two years we have made a ton of investments both monetarily and painstakingly with work by our Sailors and Phoenix Engineers, but we have produced. We can now confidently say we can save lives of Sailors that could become stranded on the oceans floor in water depth up to 2000 feet.



Yes, our Undersea Rescue Command, led by CDR Hazenberg, is Rescue Ready and can deploy anywhere in the world within 96 hours. This was most recently demonstrated during Pacific Reach 2016.

This was a multinational exercise conducted between six Pacific partnering nations (Republic of Korea, Japan, Malaysia, Australia, Singapore, and the United States).

PACREACH 2016 was the first time in four years the United States participated in an international submarine rescue exercise, and the first time the Pressurized Rescue Module (PRM) was deployed to the Pacific region. The exercise included two successful submarine matings with personnel transfers, and a Distinguished Visitor dive. PACREACH 2016 was a success and demonstrated how through submarine rescue multinational cooperation can be achieved.

In the pictures there are foreign nationals representing Australia and the Republic of Korea as they take a nice gingerly ride from a bottomed submarine back to the mother ship aboard the PRM. The two submarines that were vital in this exercise were, HMAS RANKIN and ROK CHANGBOGO.

Just three weeks ago URC completed another exercise with a Chilean Submarine, THOMPSON during CHILEMAR, and our very own Third Fleet Commander, Admiral Tyson had the opportunity to transfer from the PRM aboard the THOMPSON, have lunch, then depart. Now I'm not quoting her, but she mentioned it was the best experience of her career. My personal experience was not as wonderful, you would think after 25 years of operating submerged on submarines that I would have no fears, *oh contraire*. The only opportunity for me to ride was during training and certification of the PRM and to say I almost turned my coveralls into a poopie suit is down-playing it. When you are hard sealed to a false seating surface at 500 feet and the PRM simulates a loss of differential pressure let's just say the hard jerking of the PRM by the motors make your heart skip a few beats as your peering through the open hatch to the false seating surface.

The final significant milestone that I want to share with you all today involves one of our finest treasures in the Submarine Force.





USS SAN FRANCISCO, Commanded by CDR Jeff Juergens makes a namesake visit on her final deployment. After completing her final deployment SAN FRANCISCO will soon change homeport to Norfolk, VA where the boat will undergo a conversion to become a nuclear training ship.

To everyone that wears dolphins, all my fellow Sailors and supporters of the Navy and those looking down from Heaven, this boat is a symbol of our resolve, resiliency and our superior strength. It's very difficult to imagine that just 11 years ago this submarine would experience a horrific collision, one that left the boat crippled and in repair for numerous years. But through the hard work and dedication of shipyard workers and submariners we were able to return her to service and she would go on to perform as well or better than some of our newest submarines in our arsenal. May we never forget Petty Officer Ashley.

In conclusion, I would like to say, thank you to the Naval Submarine League for allowing me to speak today and hosting this wonderful event. Without your support it would be very difficult for us Submariners to accomplish our mission. The main two

groups of people that you truly serve and serve well are the Sailors that operate these submarines and the great people that live in this awesome country of ours. Those are our two customers, so keep them in mind daily as you go forward from here. And let's all continue to make a difference. Thank you.



NAVY FORCE STRUCTURE AND SHIPBUILDING PLANS:

Background and Issues for Congress

Mr. Ronald O'Rourke

*The following is an excerpt from Congressional Research Service
Report RL32665 dated May 15, 2017.*

Navy's New 355-Ship Ship Force-Structure Goal

Introduction

On December 15, 2016, the Navy released a new force-structure goal that calls for achieving and maintaining a fleet of 355 ships of certain types and numbers. The 355-ship force-level goal is the result of a new Force Structure Assessment (FSA) conducted by the Navy. An FSA is an analysis in which the Navy solicits inputs from U.S. regional combatant commanders (CCDRs) regarding the types and amounts of Navy capabilities that CCDRs deem necessary for implementing the Navy's portion of the national military strategy, and then translates those CCDR inputs into required numbers of ships, using current and projected Navy ship types.¹ The analysis takes into account Navy capabilities for both warfighting and day-to-day forward-deployed presence. The Navy conducts an FSA every few years, as circumstances require, to determine its force-structure goal.

The new 355-ship force-level goal replaces a 308-ship force-level goal that the Navy released in March 2015. The 355-ship force-level goal is the largest force-level goal that the Navy has released since a 375-ship force-level goal that was in place in 2002-2004. In the years between that 375-ship goal and the new 355-ship goal, Navy force-level goals were generally in the low 300s (see **Appendix B**). The actual size of the Navy in recent years has generally been between 270 and 290 ships.

Table 1 compares the Navy's new 355-ship force-level goal to its previous 308-ship force-level goal. As can be seen in the table,

compared to the previous 308-ship force-level goal, the new 355-ship force-level goal includes 47 additional ships, or about 15% more ships, including 18 attack submarines, 1 aircraft carrier, 16 large surface combatants (i.e., cruisers and destroyers), 4 amphibious ships, 3 combat logistics force (i.e., resupply) ships, 3 expeditionary support base ships (or ESBs—these were previously called Afloat Forward Staging Bases, or AFSBs), and 2 command and support ships. The 34 additional attack submarines and large surface combatants account for about 72% of the 47 additional ships.

Table 1. New 355-Ship Plan Compared to Previous 308-Ship Plan

Ship type	355-ship plan of December 2016	308 ship plan of March 2015	Difference	Difference (%)	Number of ships that would need to be added to 30-year shipbuilding plan to achieve and maintain 355-ship fleet	
					CRS estimate of addition to Navy FY17 30-year (FY17-FY46) shipbuilding plan to maintain 355-ship fleet through end of 30-year period (i.e., through FY2046)	CBO estimate of addition to notional FY18 30-year (FY18-FY47) shipbuilding plan to maintain 355-ship fleet 10 years beyond end of 30-year period (i.e., through FY2057)
Ballistic missile submarines (SSBNs)	12	12	0	0	0	0
Attack submarines (SSNs)	66	48	18	37.5	19	16 to 19
Aircraft carriers (CVNs)	12	11	1	9.1	2	4

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Large surface combatants (LSCs) (i.e., cruisers and destroyers)	104	88	16	18.2	23	24 to 25
Small surface combatants (i.e., LCSs, frigates, mine warship ships)	52	52	0	0	8	10
Amphibious ships	38	34	4	11.8	0 to 5	7
Combat logistic force (CLF) ships (i.e., resupply ships)	32	29	3	10.3	2 or 3	5
Expeditionary Fast transports (EPFs)	10	10	0	0	0	0
Expeditionary Support Base ships (ESBs)	6	3	3	100	3	3
Command and support ships	23	21	2	9.5	0 to 4	4
TOTAL	355	308	47	15.3	57 to 67	73 to 77
Average additional shipbuilding funds per year needed over 30-year period, compared to amounts needed to implement FY2017 30-year shipbuilding plan				\$4.6 billion per year to \$5.1 billion per year in additional funds, using today's shipbuilding costs		About \$5.4 billion per year in additional funds, in constant FY2017 dollars
Average additional shipbuilding funds + ship operation and support (O&S) costs per year to maintain Navy's 355-ship fleet once it is achieved not estimated						\$11 billion per year to \$23 billion per year in FY2017 dollars, not including additional costs for manned aircraft, unmanned systems, and weapons.

Source: Table prepared by CRS based on Navy’s FY2017 shipbuilding plan and information provided by CBO to CRS on April 26, 2017. The CRS and CBO estimates shown in the final two columns assume no service life extensions of existing Navy ships and no reactivations of retired Navy ships.

Notes: EPFs were previously called Joint High Speed Vessels (JHSVs). ESBs were previously called Afloat Forward Staging Base ships (AFSBs). The figures for additional small surface combatants shown in the final two columns are the net results of adding 12 small surface combatants in the earlier years of the 30-year plan and removing 4 or 2 small surface combatants, respectively, from the later years of the 30-year plan.

Apparent Reasons for Increasing Force-Level Goal from 308 Ships

The roughly 15% increase in the new 355-ship plan over the previous 308-ship plan can be viewed as a Navy response to, among other things, China’s continuing naval modernization effort;² resurgent Russian naval activity, particularly in the Mediterranean Sea and the North Atlantic Ocean;³ and challenges that the Navy has sometimes faced, given the current total number of ships in the Navy, in meeting requests from the various regional U.S. combatant commanders for day-to-day in-region presence of forward-deployed Navy ships.⁴ To help meet requests for forward-deployed Navy ships, Navy officials in recent years have sometimes extended deployments of ships beyond (sometimes well beyond) the standard length of seven months, leading to concerns about the burden being placed on Navy ship crews and wear and tear on Navy ships.⁵ Navy officials have testified that fully satisfying requests from regional U.S. military commanders for forward-deployed Navy ships would require a fleet of substantially more than 308 ships. For example, Navy officials testified in March 2014 that fully meeting such requests would require a Navy of 450 ships.⁶

In releasing its 355-ship plan on December 15, 2016, the Navy stated that

Since the last full FSA was conducted in 2012, and updated in 2014, the global security environment changed significantly, with our potential adversaries developing



capabilities that challenge our traditional military strengths and erode our technological advantage. Within this new security environment, defense planning guidance directed that the capacity and capability of the Joint Force must be sufficient to defeat one adversary while denying the objectives of a second adversary.⁷

Compared to Trump Campaign Organization Goal of 350 Ships

The figure of 355 ships appears close to an objective of building toward a fleet of 350 ships that was announced by the Trump campaign organization during the 2016 presidential election campaign. The 355-ship goal, however, reflects the national military strategy that was in place in 2016 (i.e., the Obama Administration's national military strategy). A January 27, 2017, national security presidential memorandum on rebuilding the U.S. Armed Forces signed by President Trump states: "Upon transmission of a new National Security Strategy to Congress, the Secretary [of Defense] shall produce a National Defense Strategy (NDS). The goal of the NDS shall be to give the President and the Secretary maximum strategic flexibility and to determine the force structure necessary to meet requirements."⁸

The Trump campaign organization's vision for national defense comprised eight elements, one of which was to "Rebuild the U.S. Navy toward a goal of 350 ships, as the bipartisan National Defense Panel has recommended."⁹ The Trump campaign organization did not delineate the composition of its 350-ship fleet. The figure of 350 ships appeared to be a rounded-off version of a recommendation for a fleet of up to (and possibly more than) 346 ships that was included in the 2014 report of the National Defense Panel (NDP), a panel that provided an independent review of DOD's report on its 2014 Quadrennial Defense Review (QDR).¹⁰

Four years before that, a fleet of 346 ships was recommended in the 2010 report of the independent panel that reviewed DOD's report on its 2010 QDR. The 2010 independent panel report further specified that the figure of 346 ships included 11 aircraft

carriers, 55 attack submarines (SSNs), and 4 guided missile submarines (SSGNs).¹¹

Seventeen years earlier, a fleet of 346 ships was recommended in DOD's 1993 report on its Bottom-Up Review (BUR), a major review of U.S. defense strategy, plans, and programs that was prompted by the end of the Cold War.¹² The 2014 NDP report cited above referred explicitly to the BUR in making its recommendation for future fleet size:

We believe the fleet-size requirement to be somewhere between the 2012 Future Year Defense Program (FYDP) goal of 323 ships and the 346 ships enumerated in the [1993] BUR, depending on the desired "high-low mix [of ships],"¹³ and an even larger fleet may be necessary if the risk of conflict in the Western Pacific increases.¹⁴

Additional Shipbuilding Needed to Achieve and Maintain 355-Ship Fleet CRS and CBO Estimates

Although the 355-ship plan includes 47 more ships than the previous 308-ship plan, as shown in the final two columns of **Table 1**, more than 47 ships would need to be added to the Navy's 30-year shipbuilding plan to achieve and maintain the Navy's 355-ship fleet, unless the Navy extends the service lives of existing ships beyond currently planned figures and/or reactivates recently retired ships. This is because the FY2017 30-year shipbuilding plan does not include enough ships to fully populate all elements of the 308-ship fleet across the entire 30-year period, and because some ships that will retire over the 30-year period that would not need to be replaced to maintain the 308-ship fleet would need to be replaced to maintain the 355-ship fleet. As shown in the final two columns of **Table 1**:

- CRS estimates that 57 to 67 ships would need to be added to the Navy's *FY2017 30-year (FY2017-FY2046)* shipbuilding plan to achieve the Navy's 355-ship fleet and



maintain it *through the end of the 30-year period (i.e., through FY2046)*.

- The Congressional Budget Office (CBO) estimates that 73 to 77 ships would need to be added to the Navy's *FY2018 30-year (FY2018-FY2047)* shipbuilding plan to achieve the Navy's 355-ship fleet and maintain it *not only through the end of the 30-year period (i.e., through FY2047), but another 10 years beyond the end of the 30-year period (i.e., through FY2057)*.¹⁵

Navy February 2017 White Paper on Notional FY2017-FY2023 Shipbuilding and Aircraft Procurement Increases

A February 2017 Navy white paper entitled "United States Navy Accelerated Fleet Plan" sets forth "a path to expeditiously build capacity and improve lethality of the fleet" as "a first step towards a framework to develop strategic guidance and identify the investments needed to reinvigorate our naval forces."¹⁶ The cover memorandum to the white paper states that the white paper addresses the following question: "How rapidly could the Navy increase its force size guided by operational requirements, industrial base capacity, and good stewardship of the taxpayers' money?" The results of the analysis, the cover memo states, "could be considered as a 'bounding case' for a future plan to recover from a long period of deficit [i.e., less than optimal] investment." The white paper presents notional increases in shipbuilding and aircraft procurement for the seven-year period FY2017-FY2023. **Table 2** shows those notional increases.

Table 2. Navy Notional Accelerated Fleet Plan: Shipbuilding and Aircraft Procurement

From February 2017 Navy white paper

	FY17	FY18	FY19	FY20	FY21	FY22	FY23	Total
Shipbuilding Navy FY2017 shipbuilding plan	7	8	7	8	8	10	11	59
Notional accelerated plan	12	12	11	13	13	13	14	88
Difference	+5	+4	+4	+5	+5	+3	+3	+29
Aircraft procurement Navy FY2017 aircraft plan	86	95	101	76	93	98	107	656
Notional accelerated plan	137	140	156	144	142	145	134	998
Difference	+51	+45	+55	+68	+49	+47	+27	+342

Source: *United States Navy Accelerated Fleet Plan*, undated, p. 4, with cover memorandum from the Secretary of the Navy to the Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.

The white paper states that these notional increases are

the maximum number of additional ships and aircraft that the Navy could purchase over the next seven years to get to required fleets levels as quickly as possible, relative to the current budget plan.... The Navy's accelerated plan... sets the Navy on a path that is achievable with low levels of technical risk, reduces future costs, and provides capabilities that the Navy is highly confident will remain relevant over time."¹⁷



Table 3 shows, by individual program, the additional shipbuilding summarized in **Table 2**. As can be seen in **Table 3**, compared to the Navy’s FY2017 budget submission, the Navy’s notional accelerated fleet plan includes the following additional ships, among others, during the seven year period FY2017-FY2023:

- 3 Virginia-class attack submarines (SSNs);
- 7 DDG-51 class destroyers;
- 3 Littoral Combat Ships/frigates (LCSs/FFs);
- 2 LHA-6 class amphibious assault ships;
- 2 LX(R) class amphibious ships;
- 5 TAO-205 class oilers; and
- 3 T-ESB expeditionary support base ships.

Table 3. Navy Notional Accelerated Fleet Plan: Shipbuilding by Program

From February 2017 Navy white paper

	FY17	FY18	FY19	FY20	FY21	FY22	FY23	Total
Columbia class ballistic missile submarine (SSBN)								
FY2017 budget					1			1
Accelerated fleet plan					1			1
Virginia class attack submarine (SSN)								
FY2017 budget	2	2	2	2	1	2	2	13
Accelerated fleet plan	2	2	2	2	2	3	3	16
Ford (CVN-78) class aircraft carrier								
FY2017 budget		1					1	2
Accelerated fleet plan		1				1		2
DDG-51 class destroyer								

FY2017 budget	2	2	2	2	2	2	2	14
Accelerated fleet plan	3	3	3	3	3	3	3	21
Littoral Combat Ship/Frigate (LCS/FF)								
FY2017 budget	2	1	1	1	2	2	2	11
Accelerated fleet plan	2	2	2	2	2	2	2	14
LHA-6 class amphibious assault ship								
FY2017 budget	1							1
Accelerated fleet plan	1			1			1	3
LPD-17 class amphibious ship								
FY2017 budget								0
Accelerated fleet plan	1							1
LX(R) class amphibious ship								
FY2017 budget				1		1	1	3
Accelerated fleet plan			1	1	1	1	1	5
TAO-205 class oiler								
FY0217 budget		1	1	1	1	1	1	6
Accelerated fleet plan	1	1	1	2	2	2	2	11
AS(X) submarine tender								
FY2017 Accelerated fleet plan								
TAGOS(X) ocean surveillance ship								
FY2017 budget						1		1



Accelerated fleet plan					1		1	2
TATS(X) fleet tug/salvage ship								

FY2017 budget

	FY17	FY18	FY19	FY20	FY21	FY22	FY23	Total
Accelerated fleet plan								
TEPF expeditionary fast transport								
FY2017 budget								0
Accelerated fleet plan	1	1						2
TESB expeditionary support base ships FY2017 budget								0
Accelerated fleet plan		1	1	1				3
TOTAL								
FY2017 budget	7	8	7	8	8	10	11	59
Accelerated plan	12	12	11	13	13	13	14	88
Difference	+5	+4	+4	+5	+5	+3	+3	+29

Source: *United States Navy Accelerated Fleet Plan*, undated, pp. 7-8, with cover memorandum from the Secretary of the Navy to the Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.

As can be seen in **Table 3**, compared to the Navy’s FY2017 budget submission, the Navy’s notional accelerated fleet plan does not include additional aircraft carriers in the seven-year period FY2017-FY2023, but it accelerates the procurement of a carrier from FY2023 to FY2022. The Navy’s white paper states that under the accelerated fleet plan, procurement of carriers would be accelerated to a rate of one ship every 3½ years (i.e., a combina-

tion of three- and four-year intervals) until a steady-state force of 12 carriers is achieved, and that the Navy would contract for carriers with two-ship multiyear contracts, starting with CVNs 80 and 81, the carriers that would be procured in FY2018 and FY2022.¹⁸

Time Needed to Achieve 355-Ship Fleet

Even with increased shipbuilding rates, achieving certain parts of the 355-ship force-level goal could take many years. For example, the 355-ship force-level goal includes a goal of 12 aircraft carriers. Increasing aircraft carrier procurement from the current rate of one ship every five years to one ship every three years would achieve a 12-carrier force on a sustained basis by about 2030. As another example, the 355-ship force level includes a goal of 66 attack submarines. Increasing attack submarine procurement to a rate of three attack submarines (or two attack submarines and one ballistic missile submarine) per year could achieve a 65-boat SSN force by the late 2030s. CBO estimates that the earliest the Navy could achieve the 355-ship fleet would be 2035.¹⁹

Cost to Achieve and Maintain 355-Ship Fleet

Shipbuilding Costs

Procuring the additional ships needed to achieve and maintain the Navy's 355-ship fleet would require several billion dollars per year in additional shipbuilding funds. As shown in **Table 1**:

- CRS estimates that procuring the 57 to 67 ships that would need to be added to the Navy's FY2017 30-year shipbuilding plan to achieve the Navy's 355-ship fleet and maintain it through FY2046 would notionally cost an average of roughly \$4.6 billion to \$5.1 billion per year in additional shipbuilding funds over the 30-year period, using today's shipbuilding costs.
- CBO estimates that procuring the 73 to 77 ships that would need to be added to the Navy's FY2018 30-year shipbuilding plan to achieve the Navy's 355-ship fleet and maintain it through FY2057 would cost, in constant



FY2017 dollars, an average of \$5.4 billion per year in additional shipbuilding funds over the 30-year period.²⁰

The Navy's February 2017 white paper on its notional accelerated fleet plan states that, compared to the Navy's FY2017 budget submission (whose five-year budget period covers the years FY2017-FY2021), the 23 additional ships shown in the first five years (FY2017-FY2021) of the seven-year period presented in **Table 2** would require about \$32.2 billion in then-year dollars in additional funding, or an average of about \$6.4 billion per year in then-year dollars.²¹

Aircraft Procurement Costs

CBO estimates that procuring the additional ship-based aircraft associated with the Navy's 355 ship force-level goal—including an additional carrier air wing for an aircraft carrier, plus additional aircraft (mostly helicopters) for surface combatants and amphibious ships—would require about \$15 billion in additional funding for aircraft procurement.²²

The Navy's February 2017 white paper on its notional accelerated fleet plan states that, compared to the Navy's FY2017 budget submission (whose five-year budget period covers the years FY2017-FY2021), the additional 268 additional aircraft shown in the first five years (FY2017-FY2021) of the seven-year period presented in **Table 2** would require about \$29.6 billion in then year dollars in additional funding, or an average of about \$5.9 billion per year in then-year dollars.²³

Shipbuilding and Aircraft Procurement Costs

A March 22, 2017, press report stated:

The Navy needs potentially as much as \$150 billion over current budget plans to “jumpstart” shipbuilding and get on a trajectory for a 355-ship fleet, the vice chief of naval operations said on Wednesday.

The money would add about 30 ships to the fleet beyond current plans, Adm. Bill Moran said.

The exact size of the future fleet doesn't matter right now, but rather the Navy just needs to start boosting its investment in shipbuilding quickly—which means buying many more Virginia-class attack submarines, Arleigh Burke-class destroyers and Ford-class aircraft carriers in the next few years, he said.

“I'm not here to argue that 355 or 350 is the right number. I'm here to argue that we need to get on that trajectory as fast as we can. And as time goes on you start to figure out whether that number is still valid—10 years from now, 20 years from now 355 may not be the number,” Moran said today at the annual McAleese/Credit Suisse “Defense Programs” event.

“Our number, give or take, to get to 355, or just to get started in the first seven years, is \$150 billion. That's a lot of money.”

Moran told USNI News following his remarks that dollar figure wasn't exact but was based on the Navy's best guess for how much it would cost to immediately begin a fleet buildup. A Navy official told USNI News later that one internal Navy estimate put the cost at about \$80 billion over the seven years....

“When you look at the number that started our 355 trajectory, to jump-start it – in order to jump-start it we think we need to build an additional 29 or 30 ships in the first seven years,” he said.

“When you do all that math, it's a lot of money that we don't have. But we were asked to deliver on that, so we've passed along what we think it would take. And obviously, any number you give in this environment is going to be sticker shock. So that's why I say don't take me literally, all it is is a math equation right now.”...

“We definitely wanted to go after SSNs, DDGs and carriers, to get carriers from a five year center to a four-year center and even looked at a three-year option. So the numbers I will give to you are reflective of those three



priorities, because those are the big impacters in any competition at sea,” he told USNI News.

“Amphibs come later, but I’m talking about initial, what are we building that we can stamp out that are good. We know how to build Virginia-class, we know how to build DDGs.”...

Moran said during his presentation that the Navy is currently on track to hit 310 ships – if the Fiscal Year 2017 spending bill is passed by Congress this spring after an extended continuing resolution, the Navy would finish buying the last ships that will eventually push it to 310. Without this quick ramp-up of shipbuilding, though, the Navy won’t just fail to reach 355 ships but will actually slip back below 300 ships, he said. Dozens of ships built during the Reagan-era buildup are headed for decommissioning in the 2020s and the Navy needs to act quickly to either replace them at pace and stay around 310, or ramp up even faster to grow the fleet.

The vice chief told reporters that the plan for a 355-trajectory includes building more destroyers, building carriers faster, and maintaining two SSNs a year even as the new Columbia-class ballistic missile submarine begins production. A Columbia-class SSBN is the equivalent of about two SSNs, meaning the submarine industrial base would see about double the workload in any given year under this plan.²⁴

CRS analysis of the Navy’s February 2017 white paper suggests that the figure of \$150 billion mentioned above is a hybrid cost figure that includes the following amounts shown in the white paper:

- \$32.2 billion in *additional* shipbuilding costs for the five-year period FY2017-FY2021;
- \$55.1 billion in *total* shipbuilding costs (i.e., both previously planned shipbuilding for the previously planned 308-ship fleet, plus additional shipbuilding for the 355-ship fleet) for the two-year period FY2022-FY2023;

- \$29.6 billion in *additional* aircraft procurement costs for the five-year period FY2017-FY2021; and
- \$35.4 billion in *total* aircraft procurement costs (i.e., both previously planned aircraft procurement for previously planned 308-ship fleet, plus additional aircraft procurement for the 355-ship fleet) for the two-year period FY2022-FY2023.

The sum total of the above four figures—a hybrid sum that mixes together both *additional* shipbuilding and aircraft procurement costs for FY2017-FY2021 and *total* shipbuilding and aircraft procurement costs for FY2022-FY2023—is \$152.3 billion.

Shipbuilding Plus Operation and Support (O&S) costs

As shown in **Table 1**, the above additional shipbuilding and aircraft procurement funds are only a fraction of the total costs that would be needed to achieve and maintain the Navy’s 355-ship fleet instead of the Navy’s previously envisaged 308-ship fleet. CBO estimates that, adding together both shipbuilding costs and ship operation and support (O&S) costs, the Navy’s 355-ship fleet would cost an average of about \$11 billion to \$23 billion more per year in constant FY2017 dollars than the Navy’s previously envisaged 308-ship fleet. This figure does not include additional costs for manned aircraft, unmanned systems, and weapons.²⁵ (CRS estimates that a total of roughly 15,000 additional sailors and aviation personnel might be needed for the 47 additional ships.)²⁶

Industrial Base Ability for Taking on Additional Shipbuilding Work

Navy officials have stated that, in general, the shipbuilding industrial base has the ability to take on the additional shipbuilding work needed to achieve and maintain a 355-ship fleet, and that building toward the 355-ship goal sooner rather than later would be facilitated by ramping up production of existing ship designs



rather than developing and then starting production of new designs.

Ramping up to higher rates of shipbuilding would require additional tooling and equipment at some shipyards and some supplier firms. Additional production and supervisory workers would need to be hired and trained at shipyards and supplier firms. Depending on their specialties, newly hired workers could be initially less productive per unit of time worked than more experienced workers. Given the time needed to increase tooling and hire and train new workers, some amount of time would be needed to ramp up to higher shipbuilding rates—production could not jump to higher rates overnight.²⁷ Some parts of the shipbuilding industrial base could face more challenges than others in ramping up to the higher production rates required to build the various parts of the 355-ship fleet. As stated in the April 2017 CBO report,

all seven shipyards would need to increase their workforces and several would need to make improvements to their infrastructure in order to build ships at a faster rate. However, certain sectors face greater obstacles in constructing ships at faster rates than others: Building more submarines to meet the goals of the 2016 force structure assessment would pose the greatest challenge to the shipbuilding industry. Increasing the number of aircraft carriers and surface combatants would pose a small to moderate challenge to builders of those vessels. Finally, building more amphibious ships and combat logistics and support ships would be the least problematic for the shipyards. The workforces across those yards would need to increase by about 40 percent over the next 5 to 10 years. Managing the growth and training of those new workforces while maintaining the current standard of quality and efficiency would represent the most significant industrywide challenge. In addition, industry and Navy sources indicate that as much as \$4 billion would need to be invested in the physical infrastructure of the shipyards to achieve the

higher production rates required under the [notional] 15-year and 20-year [buildup scenarios examined by CBO]. Less investment would be needed for the [notional] 25-year or 30-year [buildup scenarios examined by CBO].²⁸

A revised Navy FY2017 unfunded priorities list (UPL)²⁹ submitted to Congress in January 2017 included, as line item 36, an unfunded item for \$255 million in military construction (MilCon) and Other Procurement, Navy (OPN) funding for production facilities at the General Dynamics/Electric Boat submarine production facility at Quonset Point, RI, to facilitate increasing the attack submarine procurement rate to three boats per year.³⁰ A January 13, 2017, press report states:

The Navy’s production lines are hot and the work to prepare them for the possibility of building out a much larger fleet would be manageable, the service’s head of acquisition said Thursday.

From a logistics perspective, building the fleet from its current 274 ships to 355, as recommended in the Navy’s newest force structure assessment in December, would be straightforward, Assistant Secretary of the Navy for Research, Development and Acquisition Sean Stackley told reporters at the Surface Navy Association’s annual symposium.

“By virtue of maintaining these hot production lines, frankly, over the last eight years, our facilities are in pretty good shape,” Stackley said. “In fact, if you talked to industry, they would say we’re underutilizing the facilities that we have.”

The areas where the Navy would likely have to adjust “tooling” to answer demand for a larger fleet would likely be in Virginia-class attack submarines and large surface combatants, the DDG-51 guided missile destroyers — two



ship classes likely to surge if the Navy gets funding to build to 355 ships, he said.

“Industry’s going to have to go out and procure special tooling associated with going from current production rates to a higher rate, but I would say that’s easily done,” he said.

Another key, Stackley said, is maintaining skilled workers — both the builders in the yards and the critical supply-chain vendors who provide major equipment needed for ship construction. And, he suggested, it would help to avoid budget cuts and other events that would force workforce layoffs.

“We’re already prepared to ramp up,” he said. “In certain cases, that means not laying off the skilled workforce we want to retain.”³¹

A January 17, 2017, press report states:

Building stable designs with active production lines is central to the Navy’s plan to grow to 355 ships. “if you look at the 355-ship number, and you study the ship classes (desired), the big surge is in attack submarines and large surface combatants, which today are DDG-51 (destroyers),” the Assistant Secretary of the Navy, Sean Stackley, told reporters at last week’s Surface Navy Association conference. Those programs have proven themselves reliable performers both at sea and in the shipyards.

From today’s fleet of 274 ships, “we’re on an irreversible path to 308 by 2021. Those ships are already in construction,” said Stackley. “To go from there to 355, virtually all those ships are currently in production, with some exceptions: Ohio Replacement, (we) just got done the Milestone B there (to move from R&D into detailed design); and then upgrades to existing platforms. So we have hot production lines that will take us to that 355-ship Navy.”³²

A January 24, 2017, press report states:

Navy officials say a recently determined plan to increase its fleet size by adding more new submarines, carriers and destroyers is “executable” and that early conceptual work toward this end is already underway....

Although various benchmarks will need to be reached in order for this new plan to come to fruition, such as Congressional budget allocations, Navy officials do tell Scout Warrior that the service is already working—at least in concept—on plans to vastly enlarge the fleet. Findings from this study are expected to inform an upcoming 2018 Navy Shipbuilding Plan, service officials said.³³

A January 12, 2017, press report states:

Brian Cuccias, president of Ingalls Shipbuilding [a shipyard owned by Huntington Ingalls Industries (HII) that builds Navy destroyers and amphibious ships as well as Coast Guard cutters], said Ingalls, which is currently building 10 ships for four Navy and Coast Guard programs at its 800-acre facility in Pascagoula, Miss., could build more because it is using only 70 to 75 percent of its capacity.³⁴

A March 2017 press report states:

As the Navy calls for a larger fleet, shipbuilders are looking toward new contracts and ramping up their yards to full capacity....

The Navy is confident that U.S. shipbuilders will be able to meet an increased demand, said Ray Mabus, then-secretary of the Navy, during a speech at the Surface Navy Association’s annual conference in Arlington, Virginia.

They have the capacity to “get there because of the ships we are building today,” Mabus said. “I don’t think we could have seven years ago.”



Shipbuilders around the United States have “hot” production lines and are manufacturing vessels on multi-year or block buy contracts, he added. The yards have made investments in infrastructure and in the training of their workers.

“We now have the basis ... [to] get to that much larger fleet,” he said.... Shipbuilders have said they are prepared for more work.

At Ingalls Shipbuilding—a subsidiary of Huntington Ingalls Industries—10 ships are under construction at its Pascagoula, Mississippi, yard, but it is under capacity, said Brian Cuccias, the company’s president.

The shipbuilder is currently constructing five guided-missile destroyers, the latest San Antonio-class amphibious transport dock ship, and two national security cutters for the Coast Guard.

“Ingalls is a very successful production line right now, but it has the ability to actually produce a lot more in the future,” he said during a briefing with reporters in January.

The company’s facility is currently operating at 75 percent capacity, he noted.... Austal USA—the builder of the Independence-variant of the littoral combat ship and the expeditionary fast transport vessel—is also ready to increase its capacity should the Navy require it, said Craig Perciavalle, the company’s president. The latest discussions are “certainly something that a shipbuilder wants to hear,” he said. “We do have the capability of increasing throughput if the need and demand were to arise, and then we also have the ability with the present workforce and facility to meet a different mix that could arise as well.”

Austal could build fewer expeditionary fast transport vessels and more littoral combat ships, or vice versa, he added.

“The key thing for us is to keep the manufacturing lines hot and really leverage the momentum that we’ve gained on both of the programs,” he said.

The company—which has a 164-acre yard in Mobile, Alabama—is focused on the extension of the LCS and expeditionary fast transport ship program, but Perciavalle noted that it could look into manufacturing other types of vessels.

“We do have excess capacity to even build smaller vessels ... if that opportunity were to arise and we’re pursuing that,” he said.

Bryan Clark, a naval analyst at the Center for Strategic and Budgetary Assessments, a Washington, D.C.-based think tank, said shipbuilders are on average running between 70 and 80 percent capacity. While they may be ready to meet an increased demand for ships, it would take time to ramp up their workforces.

However, the bigger challenge is the supplier industrial base, he said.

“Shipyards may be able to build ships but the supplier base that builds the pumps ... and the radars and the radios and all those other things, they don’t necessarily have that ability to ramp up,” he said. “You would need to put some money into building up their capacity.”

That has to happen now, he added.

Rear Adm. William Gallinis, program manager for program executive office ships, said what the Navy must be “mindful of is probably our vendor base that support the shipyards.”

Smaller companies that supply power electronics and switchboards could be challenged, he said.

“Do we need to re-sequence some of the funding to provide some of the facility improvements for some of the vendors that may be challenged? My sense is that the industrial base will size to the demand signal. We just



need to be mindful of how we transition to that increased demand signal,” he said.

The acquisition workforce may also see an increased amount of stress, Gallinis noted. “It takes a fair amount of experience and training to get a good contracting officer to the point to be [able to] manage contracts or procure contracts.”

“But I don’t see anything that is insurmountable,” he added.³⁵

Employment Impact of Additional Shipbuilding Work

Depending on the number of additional ships per year that might be added to the Navy’s shipbuilding effort, building the additional ships that would be needed to achieve and maintain the 355-ship fleet could create thousands of additional manufacturing (and other) jobs at shipyards, associated supplier firms, and elsewhere in the U.S. economy.

Consistent with U.S. law, the seven shipyards that build most of the Navy’s major ships are all located in the United States.³⁶ As of 2016, these seven yards reportedly employed a total of more than 66,000 people.³⁷ Production workers account for a sizeable fraction of that figure. Some of the production workers are assigned to projects other than building Navy ships.³⁸ (The remaining employees at the yards include designers and engineers, management and supervisory staff, and administrative and support staff.) Navy shipbuilding additionally supports thousands of manufacturing and other jobs at hundreds of supplier firms located throughout the United States. (Some states have more of these firms, while others have fewer of them.)

Shipbuilding can also have broader effects on the U.S. economy. A 2015 Maritime Administration (MARAD) report states, “Considering the indirect and induced impacts, each direct job in the shipbuilding and repairing industry is associated with another 2.6 jobs in other parts of the US economy; each dollar of direct labor income and GDP in the shipbuilding and repairing industry

is associated with another \$1.74 in labor income and \$2.49 in GDP, respectively, in other parts of the US economy.”³⁹

A March 2017 press report states, “Based on a 2015 economic impact study, the Shipbuilders Council of America [a trade association for U.S. shipbuilders and associated supplier firms] believes that a 355-ship Navy could add more than 50,000 jobs nationwide.”⁴⁰ The 2015 economic impact study referred to in that quote might be the 2015 MARAD study discussed in the previous paragraph. An estimate of more than 50,000 additional jobs nationwide might be viewed as a higher-end estimate; other estimates might be lower.

Navy Desire to Improve Ship Readiness Before Expanding Fleet

Navy officials have indicated that, prior to embarking on a fleet expansion, they would first like to see additional funding provided for overhaul and repair work to improve the readiness of existing Navy ships, particularly conventionally powered surface ships, and for mitigating other shortfalls in Navy readiness.⁴¹

A December 12, 2016, press report states:

Despite President-elect Donald Trump's goal of building toward a 350-ship Navy, the service's immediate priorities under an increased budget would be catching up on ship and aircraft maintenance, as well as buying more strike fighters and munitions, according to a top officer.

Eying the potential for increased military spending under Trump's administration, the Navy is developing a list of priorities the service has if more funding becomes available, according to Vice Chief of Naval Operations Adm. Bill Moran.

"Maintenance and modernization for ships, submarines and aircraft are at the top of our list," Moran told reporters....⁴²



A January 11, 2017, press report similarly states:

Speaking at the Surface Navy Association's annual symposium near Washington, D.C., on Tuesday, Moran said Navy leaders have already told President-elect Donald Trump's transition team that they want any additional funding that comes available within this fiscal year to go to maintenance first.

"The transition team came around to all of us in the building and asked us what we could do with more money right now," Moran said. "The answer was not, 'Buy more ships.' The answer was, 'Make sure that the 274 that we had were maintained and modernized to provide 274 ships' worth of combat time.' Then, we'll start buying more ships."⁴³

Another January 11, 2017, press report similarly states:

The message Navy leaders are sending to President-elect Donald Trump's team is: We need money to keep the current 274 ships in the fleet maintained and modernized first and then give us the money to buy more ships....

In talking with the press and in his address, he said, "It is really hard to see the light at the end of the tunnel" if maintenance is continuously deferred, causing ships to be in the yards far longer in the yards than expected with costs rising commensurately.

"Deferred maintenance is insidiously taking its toll."

Not only does this add greater risk and a growing gap between the combatant commanders' requirements and what the service can deliver, "you can't buy back that experience" and proficiency sailors lose when they can't use their skills at sea.

"At some point, we have to dig ourselves out of the hole," Moran said in his address.⁴⁴

A January 24, 2017, press report states:

The Navy wants \$2 billion in additional funding this year for much-needed ship maintenance and fleet operations, and would also buy two dozen Super Hornets and an additional San Antonio-class amphibious warship if money were made available, according to an early January draft wish list obtained by USNI News.

While the list is not as official as the February 2016 Unfunded Priorities List from which it stems, it is meant to be a conversation-starter with Congress and the new Trump Administration on the Navy's needs for today and in the near term, a senior service official told USNI News on Tuesday. The main message of that conversation is that current readiness must be addressed first, with acquisitions wishes being addressed afterwards with whatever funding may remain, a senior Navy official told USNI News.

“Our priorities are unambiguously focused on readiness—those things required to get planes in the air, ships and subs at sea, sailors trained and ready,” the official said....

The first section of the updated list addresses afloat readiness, which both the Navy and the new Trump Administration have said would be a primary focus of any FY 2017 supplemental....

More than \$500 million for air operations and flying hours, as well as \$339 million for ship operations and \$647 for ship depot maintenance, sit atop the wish list. These items were included in the original UPL but have been prioritized first in this most recent version....

Earlier this month Vice Chief of Naval Operations Adm. Bill Moran said that, while President Donald Trump had expressed interest in growing the Navy fleet, readiness needed to be a top priority before growing a larger fleet. “Deferred maintenance is insidiously taking its toll,” he said, and “at some point, we have to dig ourselves out of the hole” that has been created from years of too little funding for operations and maintenance.⁴⁵



Another January 24, 2017, press report similarly states:

With no fiscal 2017 defense budget in sight and little chance of an agreement before April—if then—the military services are submitting second and possibly third rounds of unfunded requirements lists to Congress. The lists include items left out of the original budget requests, ranked in order of priority should Congress find a way to fund them.

The latest list from the US Navy was sent to Congress Jan. 5, updating a similar list sent over at the end of February but rejiggered in light of the new 355-ship Force Structure Assessment, changes in requirements and the lateness of the fiscal year, which limit what can be done in the current budget. The new list also reflects what Navy leaders have been saying in recent weeks they need most—maintenance funding. While the late February list lead off with acquisition needs, the new top priorities include \$2 billion in afloat readiness funding....

The maintenance needs reflect Navy decisions in recent years to put off upkeep and protect long-term procurement accounts from successive cuts mandated by the Budget Control Act – also known as sequestration. But recent statements from top Navy brass underscore the need to restore maintenance money.

“Our priorities are unambiguously focused on readiness -- those things required to get planes in the air, ships and subs at sea, sailors trained and ready,” the Navy official declared. “No new starts.”⁴⁶

ENDNOTES

1. The Navy states that [the] Navy’s Force Structure Assessment (FSA) was developed in an effort to determine the right balance of existing forces, the ships we currently have under construction and the future procurement plans needed to address the ever-evolving and increasingly complex threats the Navy is required to counter in the global maritime commons....

The number and mix of ships in the objective force, identified by this FSA, reflects an in-depth assessment of the Navy’s force structure requirements—it

also includes a level of operational risk that we are willing to assume based on the resource limitations under which the Navy must operate. While the force levels articulated in this FSA are adjudged to be successful in the scenarios defined for Navy combat, that success will likely also include additional loss of forces, and longer timelines to achieve desired objectives, in each of the combat scenarios against which we plan to use these forces. It should not be assumed that this force level is the “desired” force size the Navy would pursue if resources were not a constraint—rather, this is the level that balances an acceptable level of warfighting risk to our equipment and personnel against available resources and achieves a force size that can reasonably achieve success....

In January, the 2016 FSA started with a request to the Combatant Commanders (CCDRs) to provide their unconstrained desire for Navy forces in their respective theaters. In order to fully resource these platform-specific demands, with very little risk in any theater while still supporting enduring missions and ongoing operations, the Navy would be required to double its current annual budget, which is essentially unrealistic in both current and expected future fiscal environments. After identifying instances where forces were being requested for redundant missions or where enduring force levels were not required, while also looking at areas where we could take some risk in mission success or identify a new way to accomplish the mission, we were able to identify an FSA force level better aligned with resources available....

In order to assess warfighting risk and identify where margins existed that could be reduced, we did an in-depth review and analysis of “what it takes to win”, on what timeline, and in which theater, for each major ship class. The goal of this phase of the analysis was to determine the minimum force structure that: -- complies with defense planning guidance directed combinations of challenges for force sizing and shaping; -- meets approved Day 0 and warfighting response timelines; [and] -- delivers future steady state and warfighting requirements, determined by Navy’s analytic process, with an acceptable degree of risk (e.g. – does not jeopardize joint force campaign success).

2. For more on China’s naval modernization effort, see CRS Report RL33153, *China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress*, by Ronald O’Rourke.

3. See, for example, Dave Majumdar, “Chief of Naval Operations Richardson: US Navy is Focusing on Enemy Submarine Threat,” *National Interest*, August 30, 2016; Dmitry Gorenburg, “Black Sea Fleet Projects Power Westward,” *Russian Military Reform*, July 20, 2016; Dave Majumdar, “Russia’s Submarine Force Is Back: How Worried Should America Be?” *National Interest*, July 5, 2016; Sa, LaGrone, “Admiral Warns: Russian Subs Waging Cold War-Style ‘Battle of the Atlantic,’” *USNI News*, June 3, 2016; Jim Sciutto et al., “CNN Visits Nuclear Submarine As Deep-Sea Tensions with Russia Grow,” *CNN*, May 5, 2016; Eric Schmitt, “Russia Bolsters Its Submarine Fleet, and Tensions With U.S. Rise,” *New York Times*, April 20, 2016; Jim Sciutto, “Top Navy Official: Russian Sub Aggression at Peak Since Cold War,” *CNN*, April 15, 2016; Franz-Stefan Gady, “Russian Sub Combat Patrols Nearly Doubled in 2015,” *The*



Diplomat, March 23, 2016; Karl Soper, “Russia Confirms Higher Level of Submarine Activity,” *IHS Jane’s 360*, March 23, 2016; Magnus Nordenman, “Russian Subs Are Reheating a Cold War Chokepoint,” *Defense One*, March 4, 2016; Richard Lardner, “US Commander Says Tracking Russian Subs Is a Key Challenge,” *CNBC*, March 1, 2016; Paul McLeary, “Chinese, Russian Subs Increasingly Worrying the Pentagon,” *Foreign Policy*, February 24, 2016; Thomas Gibbons-Neff, “Report: Russian Sub Activity Returns to Cold War Levels,” *Washington Post*, February 4, 2016; Nicholas de Larrinaga, “Russian Submarine Activity Topping Cold War Levels,” *IHS Jane’s 360*, February 2, 2016.

4. See, for example, Justin Doubleday, “CNO: High Optempo Hindering Seven-Month Deployment Goal,” *Inside the Navy*, September 19, 2016; Chris Church, “Analysts: Truman Strike Group Extension Highlights Flaws in Navy’s Deployment Goal,” *Stars and Stripes*, May 5, 2016; David Larter, “Navy Leader Warns Long Deployments Will Harm the Fleet,” *Navy Times*, April 20, 2016; Hope Hodge Seck, “Overtaxed Fleet Needs Shorter Deployments,” *Military.com*, March 19, 2016; David Larter, “Carrier Scramble: CENTCOM, PACOM Face Flattop Gaps This Spring Amid Tensions,” *Navy Times*, January 7, 2016; Bryan Clark and Jesse Sloman, *Deploying Beyond Their Means, America’s Navy and Marine Corps at a Tipping Point*, Center for Strategic and Budgetary Assessments, 2015, 28 pp.; Ryan T. Tewell, “Assessing the U.S. Aircraft Carrier Gap in the Gulf,” Washington Institute for Near East Policy, October 5, 2015.⁵ See, for example, Hope Hodge Seck, “CNO: Navy to Hit Seven-Month Deployments by End of Year,” *Military.com*, February 12, 2016; Chris Church, “Analysts: Truman Strike Group Extension Highlights Flaws in Navy’s Deployment Goal,” *Stars and Stripes*, May 5, 2016; David Larter, “Navy Leader Warns Long Deployments Will Harm the Fleet,” *Navy Times*, April 20, 2016; Hope Hodge Seck, “Overtaxed Fleet Needs Shorter Deployments,” *Military.com*, March 19, 2016; Bryan Clark and Jesse Sloman, *Deploying Beyond Their Means, America’s Navy and Marine Corps at a Tipping Point*, Center for Strategic and Budgetary Assessments, 2015, 28 pp.; David Larter, “CNO: Shorter Carrier Cruises A Year Away,” *Navy Times*, February 28, 2015; David Larter, “Uneven Burden: Some Ships See Time at Sea Surge; Others Fall Well Below Fleetwide Average,” *Navy Times*, June 16, 2014; Richard Sisk, “Struggle Ahead to Reach 8-Month Sea Deployments,” *Military.com*, April 8, 2016; David Larter, “Navy Fleet Boss: 9-Month Deployments Unsustainable,” *Military Times*, April 8, 2014; Lance M. Bacon, “Fleet’s New Deployment Plan To Lock In 8-Month Cruises,” *Defense News*, April 6, 2014.

6. Spoken testimony of Admiral Jonathan Greenert at a March 12, 2014, hearing before the House Armed Services Committee on the Department of the Navy’s proposed FY2015 budget, as shown in transcript of hearing.

7. U.S. Navy, *Executive Summary, 2016 Navy Force Structure Assessment (FSA)*, December 15, 2016, p. 1. See also *United States Navy Accelerated Fleet Plan*, undated, 14 pp., with cover memorandum from the Secretary of the Navy to the

- Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.
8. “Presidential Memorandum on Rebuilding the U.S. Armed Forces,” accessed January 31, 2017, at <https://www.whitehouse.gov/the-press-office/2017/01/27/presidential-memorandum-rebuilding-us-armed-forces>.
9. “National Defense, Donald J. Trump’s Vision,” accessed January 19, 2017, at <https://www.donaldjtrump.com/policies/national-defense>.
10. William J. Perry et al., *Ensuring a Strong U.S. Defense for the Future: The National Defense Panel Review of the 2014 Quadrennial Defense Review*, Washington, 2014, p. 3. The statement appears again on page 49.
11. Stephen J. Hadley and William J. Perry, co-chairmen, et al., *The QDR in Perspective: Meeting America’s National Security Needs In the 21st Century, The Final Report of the Quadrennial Defense Review Independent Panel*, Washington, 2010, Figure 3-2 on pages 58-59.
12. Department of Defense, Report on the Bottom-Up Review, October 1993, Figure 7 on page 28. For further discussion of the 1993 BUR, see CRS Report R43838, *A Shift in the International Security Environment: Potential Implications for Defense—Issues for Congress*, by Ronald O'Rourke.
13. The term *high-low mix* refers to a force structure consisting of some mix of individually more-capable (and more expensive) units, and individually less-capable (and less-expensive) units.
14. William J. Perry et al., *Ensuring a Strong U.S. Defense for the Future: The National Defense Panel Review of the 2014 Quadrennial Defense Review*, Washington, 2014, p. 3. The statement appears again on page 49.
15. Information provided by CBO to CRS on April 26, 2017, reflecting information in Congressional Budget Office, *Costs of Building a 355-Ship Navy*, April 2017, 12 pp.
16. *United States Navy Accelerated Fleet Plan*, undated, 14 pp., with cover memorandum from the Secretary of the Navy to the Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.
17. *United States Navy Accelerated Fleet Plan*, undated, p. 4, with cover memorandum from the Secretary of the Navy to the Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.
18. *United States Navy Accelerated Fleet Plan*, undated, p. 8, with cover memorandum from the Secretary of the Navy to the Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.
19. Congressional Budget Office, *Costs of Building a 355-Ship Navy*, April 2017, p. 1.



20. Information provided by CBO to CRS on April 26, 2017, reflecting information in Congressional Budget Office, *Costs of Building a 355-Ship Navy*, April 2017, 12 pp.

21. *United States Navy Accelerated Fleet Plan*, undated, p. 10, with cover memorandum from the Secretary of the Navy to the Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.

22. Information provided by CBO to CRS on April 26, 2017, reflecting information in Congressional Budget Office, *Costs of Building a 355-Ship Navy*, April 2017, p. 3. The same figure is mentioned on page 7.

23. *United States Navy Accelerated Fleet Plan*, undated, p. 14, with cover memorandum from the Secretary of the Navy to the Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.

24. Megan Eckstein, “Moran: Navy Needs As Much As \$150B Extra to ‘Jump-Start’ Path to 355 Ships; Would Buy Mostly DDGs, SSNs, Carriers,” USNI News, March 22, 2017.

25. Information provided by CBO to CRS on April 26, 2017, reflecting information in Congressional Budget Office, *Costs of Building a 355-Ship Navy*, April 2017, 12 pp.

26. The rough estimate of 15,000 additional sailors is based on Navy ship crew sizes as shown in the Navy’s online Fact File (<http://www.navy.mil/navydata/fact.asp>), and includes the following:

- about 2,376 sailors for 18 additional attack submarines (132 per boat);
- about 4,500 sailors for 1 additional aircraft carrier (including about 3,000 to operate the ship and about 1,500 to operate its embarked air wing);
- about 5,264 sailors for 16 additional destroyers (329 per ship);
- about 1,520 sailors for 4 additional amphibious ships (380 per ship);
- about 18 sailors for 3 additional combat logistics force ships (6 per ship—these ships have mostly civilian crews);
- about 750 sailors for 3 additional expeditionary support base ships (ESBs) (about 250 per ship, depending on the mission—these ships also have 34 additional Military Sealift Command personnel); and
- additional sailors for the 2 additional command and support ships.

The figures above exclude any additional sailors that might be needed ashore in support roles.

27. For further discussion regarding the challenges of expanding shipyard workforces, see Mike Stone, “Missing from Trump’s Grand Navy Plan: Skilled



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Workers to Build the Fleet,” *Reuters*, March 17, 2017; and James Bach, “Massive Navy Expansion May Be Easier Said Than Done for U.S. Shipbuilders,” *Washington Business Journal*, March 3, 2017.

28. Congressional Budget Office, *Costs of Building a 355-Ship Navy*, April 2017, pp. 9-10.

29. A UPL (also sometimes called an unfunded requirements list, or URL) is a list of items that are not funded in the service’s budget request that the service has identified as its priorities for receiving any additional funding that Congress might decide to provide to the service as part of its markup of the service’s requested budget.

30. Navy information paper entitled “Revised FY 2017 Unfunded Priorities List,” January 5, 2017, p. 2. The document was posted at DefenseNews.com on January 24, 2017.

31. Hope Hodge Seck, “Navy Acquisition Chief: Surge to 355 Ships ‘Easily Done,’” *DoD Buzz*, January 13, 2017.

32. Sydney J. Freedberg Jr., “Build More Ships, But Not New Designs: CNO Richardson To McCain,” *Breaking Defense*, January 17, 2017.

33. Kris Osborn, “Navy: Larger 355-Ship Fleet—‘Executable,’” *Scout Warrior*, January 24, 2017.

34. Marc Selinger, “Navy Needs More Aircraft to Match Ship Increase, Secretary [of the Navy] Says,” *Defense Daily*, January 12, 2017. See also Lee Hudson, “Ingalls Operating at About 75 Percent Capacity, Provided Info to Trump Team,” *Inside the Navy*, January 16, 2017.

35. Yasmin Tadjdeh, “Navy Shipbuilders Prepared for Proposed Fleet Buildup,” *National Defense*, March 2017.

36. 10 USC 7309 states:

§7309. Construction of vessels in foreign shipyards: prohibition

- A. Prohibition.—Except as provided in subsection (b), no vessel to be constructed for any of the armed forces, and no major component of the hull or superstructure of any such vessel, may be constructed in a foreign shipyard.
- B. Presidential Waiver for National Security Interest.— (1) The President may authorize exceptions to the prohibition in subsection (a) when the President determines that it is in the national security interest of the United States to do so.
 (2) The President shall transmit notice to Congress of any such determination, and no contract may be made pursuant to the exception authorized until the end of the 30-day period beginning on the date on which the notice of the determination is received by Congress.
- C. Exception for Inflatable Boats. - An inflatable boat or a rigid inflatable boat, as defined by the Secretary of the Navy, is not a vessel for the purpose of the restriction in subsection (a).



In addition, the paragraph in the annual DOD appropriations act that makes appropriations for the Navy’s primary shipbuilding account (the Shipbuilding and Conversion, Navy, or SCN, account) typically includes provisions stating “*Provided further*, That none of the funds provided under this heading for the construction or conversion of any naval vessel to be constructed in shipyards in the United States shall be expended in foreign facilities for the construction of major components of such vessel: *Provided further*, That none of the funds provided under this heading shall be used for the construction of any naval vessel in foreign shipyards.”

37. Two of these seven shipyards—Newport News Shipbuilding of Newport News, VA, and Ingalls Shipbuilding of Pascagoula, MIS—are owned by Huntington Ingalls Industries (HII). HII’s primary activities are building new submarines and aircraft carriers and performing mid-life refueling overhauls of existing aircraft carriers. HII states that it employed a total of almost 37,000 people as of January 2017. (Source: HII website, <http://www.huntingtoningalls.com/>, accessed January 26, 2017.)

Three of these seven shipyards—Bath Iron Works of Bath, ME; the Electric Boat division of Groton, CT, and Quonset Point, RI; and National Steel and Shipbuilding Company (NASSCO) in San Diego, CA—are owned by General Dynamics (GD). GD reportedly employed a total of roughly 23,600 people at these three shipyards as of 2016, with the breakdown as follows:

- GD/BIW reportedly employed 6,100 people as of September 2016. (Source: Beth Brogan, “Bath Iron Works cuts 160 jobs, including layoff of 30 workers,” *Bangor Daily News*, September 23, 2016.)
- GD/EB reportedly employed about 14,000 people as of 2016. (Source: Stephen Singer, Electric Boat To Hire Thousands As Military Strategy Shifts Back To Subs, *Hartford Courant*, April 18, 2016. The article states:
- “As many as 850 high-skilled, well-paid manufacturing and other jobs are being filled this year and nearly 4,000 in the next 15 years, establishing a workforce of 18,000 at the submarine manufacturer’s sites in Groton and Quonset Point, R.I.”)
- GD/NASSCO reportedly employed about 3,500 people as of October 2016. (Source: Chris Jennewein,
- “NASSCO Warns Employees 700 Layoffs May Be Coming in January,” *Times of San Diego*, October 25, 2016.)

The remaining two shipyards are Fincantieri/Marinette Marine of Marinette, WI, and Austal USA of Mobile, AL. Both yards build Littoral Combat Ships (LCSs), and Austal USA additionally builds Expeditionary Fast Transports (EPFs— these ships were previously called Joint High Speed Vessels, or JHSV's). As of March 2016, Marinette Marine reportedly employed more than 2,000 people and Austal USA reportedly employed more than 4,000 people. (Source: Allyson Versprille, "LCS Cuts Could Strain Shipbuilding Industry," *National Defense*, March 2016.)

38. For example, at HII/Newport News Shipbuilding, a sizeable fraction of the production workforce is assigned to midlife nuclear refueling overhauls of existing aircraft carriers. At HII/Ingalls, some production workers are assigned to building national Security Cutters (NSCs) for the Coast Guard. At GD/NASSCO, some production workers may be assigned to the production of commercial cargo ships.

39. Maritime Administration (MARAD), *The Economic Importance of the U.S. Shipbuilding and Repairing Industry*, November 2015, pp. E-3, E-4. For another perspective on the issue of the impact of shipbuilding on the broader economy, see Edward G. Keating et al, *The Economic Consequences of Investing in Shipbuilding, Case Studies in the United States and Sweden*, RAND Corporation, Santa Monica, CA, 2015 (Report RR-1036), 69 pp.

40. Yasmin Tadjdeh, "Navy Shipbuilders Prepared for Proposed Fleet Buildup," *National Defense*, March 2017. Similarly, another press report states: "The Navy envisioned by Trump could create more than 50,000 jobs, the Shipbuilders Council of America, a trade group representing U.S. shipbuilders, repairers and suppliers, told Reuters." (Mike Stone, "Missing from Trump's Grand Navy Plan: Skilled Workers to Build the Fleet," *Reuters*, March 17, 2017.)

41. In addition to the press reports cited here, see also *United States Navy Accelerated Fleet Plan*, undated, pp. 2-4, with cover memorandum from the Secretary of the Navy to the Secretary of Defense, February 9, 2017, posted at InsideDefense.com (subscription required) April 6, 2017.

42. Justin Doubleday, "Maintenance, Modernization Are Navy's Priorities Under Higher Topline," *Inside the Navy*, December 12, 2016.

43. Hope Hodge Seck, "Navy to Trump Team: Fund Maintenance Before Buying New Ships," *DoD Buzz*, January 11, 2017.

44. John Grady, "Navy to Trump: We Need Maintenance Funded Before New Ships," *USNI News*, January 11, 2017.

45. Megan Eckstein, "Update to Navy Unfunded Priorities List Emphasizes Readiness; Would Add More Super Hornets, Additional Amphib," *USNI News*, January 24, 2017.

46. Hope Hodge Seck, "Navy to Trump Team: Fund Maintenance Before Buying New Ships," *DoD Buzz*, January 11, 2017.

THE U.S. NUCLEAR TRIAD NEEDS AN UPGRADE

With bombers shifted to other duties and missiles aging out, the arsenal requires modernizing.

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A B-52 bomber from North Dakota does a flyby in Marnes-la-Coquette, France. PHOTO: AFP/GETTY IMAGES

This open letter is signed by the following retired four-star U.S. Air Force and Navy officers, all former commanders of the United States Strategic Command or its predecessor, the Strategic Air Command: Gen. C. Robert Kehler, Gen. Larry D. Welch, Adm. James O. Ellis Jr., Gen. Kevin P. Chilton, Adm. Cecil D. Haney, Adm. Henry G. Chiles, Gen. Eugene E. Habiger and Adm. Richard W. Mies.

The United States has long relied primarily on a triad of nuclear-capable ballistic missile submarines (SSBNs) at sea, land-based intercontinental ballistic missiles (ICBMs), and long-range bombers to deter attacks on the U.S. and our allies. The combined capabilities of the triad provide the president with the mixture of systems and weapons necessary to hold an adversary's most valuable targets at risk, with the credibility of an assured response if needed—the essence of deterrence. The triad's flexibility and responsiveness among its elements allow political leaders to signal intent and enhance deterrence stability in crises or conflict.

Today's triad is far smaller and postured much less aggressively than its Cold War ancestor. Shaped by presidential initiatives and sized by arms reduction agreements, by 2018 the number of weapons deployed on triad systems will be barely one-tenth of Cold War highs. Heavy bombers and supporting tankers are no longer loaded and poised to take off with nuclear weapons, and ballistic missiles are aimed at open areas of the ocean. Theater nuclear forces have been reduced to a small number of dual-capable aircraft supporting the NATO alliance.

The common post-Cold War hope and expectation among Western leaders was for a benign “new world order.” The reality, however, is that the United States now faces far more diverse security problems and greater uncertainty than it did during the Cold War. Threats now range from small arms in the hands of extremists to nuclear weapons in the hands of hostile foreign leaders who frequently declare their willingness to engage in nuclear first use.

For example, Russia's (and North Korea's) explicit nuclear threats now remind us almost daily that nuclear weapons are not gone and it appears they will not be eliminated from world affairs anytime soon. Russia and China are modernizing their nuclear forces as the basis of strategies designed to expand their positions at our expense and that of our allies. In addition, North Korea's nuclear capabilities now threaten our regional allies and eventually could threaten us directly.

Given these realities, the nation continues to need the strategic benefits we have come to rely on from a nuclear triad that works

together with other elements of U.S. power to provide effective deterrence for the 21st century. We have participated in numerous studies and reviews that confirm that recapitalization of the nuclear triad is required and time is running out.

The last concentrated investment to modernize the triad came during the Reagan administration. We continue to rely on that era's Ohio-class SSBNs, missiles, and B-2 bombers today as well as B-52s, Minuteman ICBMs, Air Launched Cruise Missiles (ALCMs), and command-and-control systems that were designed and fielded far earlier. Even with periodic upgrades and life extensions, legacy systems that were conceived and deployed over three decades ago are reaching the inevitable end of their service lives.

Some former senior officials have recently recommended eliminating the ICBM leg of the triad. But we have already removed the bombers from the daily nuclear deterrence commitment, and we now essentially rely on a relatively small *dyad* of SSBNs and ICBMs to meet our daily deterrence requirements. The consistent readiness of our ICBMs has allowed us to adjust the number of SSBNs routinely at sea, and together the ICBMs and SSBNs have freed the bombers for use by commanders in a conventional role—with great effect across a range of national security needs to include against terrorist organizations.

Plans are in place (and are exercised) to return the bombers to nuclear alert if needed. Leveraging this dual-capable flexibility of the bomber force will be a significant strength of the future triad for deterring foes and assuring allies. In short, the combined strengths of the triad, including the ICBM force, continue to create great efficiencies and flexibility in support of our enduring national security objectives.

Eliminating the ICBM leg of the triad now would effectively leave the U.S. with a *monad* of SSBNs for daily deterrence, unless bombers are returned to nuclear alert status—which would mean that an unforeseen advance in antisubmarine warfare, or a technical failure in the SSBNs, their missiles, or warheads would force the president to choose between having no readily available nuclear deterrence capabilities or quickly returning bombers to

nuclear alert—a step that carries its own cost and risk. Eliminating ICBMs would also greatly simplify an enemy’s attack problem, with implications for deterrence and stability.

National commitment and consensus are as important now as they were during the Cold War. We face an uncertain future and there is no higher national security priority than deterring the actual or coercive use of nuclear weapons against us and our allies. Our potential adversaries are not idly standing by, and we have run out of time to further delay the recapitalization of our nuclear deterrent. The United States will need a nuclear deterrent for as far into the future as we can see and a triad shaped to 21st century needs is still the most effective means to provide it.

A bipartisan consensus now exists in Congress in support of plans to modernize all three triad legs, the industrial complex that sustains our nuclear weapons, and the critical command and control system that links the president to the nuclear forces for positive control. Let’s get on with it.



ARTICLES**THE JAPANESE ATTACKS ON PEARL HARBOR AND
THE PHILIPPINES:
TWO FATAL AND UNNECESSARY MISTAKES**

by CAPT Jack O'Connell, USN, Ret.

On December 7, 1941 the Imperial Japanese Navy made a *fatal and totally unnecessary mistake* by attacking the major American naval base at Pearl Harbor, Hawaii with the goal of putting the U.S. Pacific Fleet out of action and thus rendering it unable to steam to the relief of the Philippine Islands. Several hours later, on December 8 American installations in the Philippine Islands were attacked by air, a prelude to amphibious invasions designed to seize and hold the islands, removing them as a threat to Japanese invasions of Malaya, Borneo, and the Netherlands East Indies. The second attack was also *a major blunder*.

The attack on Pearl Harbor brought the United States, up to that point a politically divided nation, fully and wholeheartedly into the war – determined to destroy Japan. *Neither attack was necessary*.

Although the Philippine Islands provided American naval and air forces with a potential base for military operations against the sea lines of communication between South East Asia and Japan proper, such operations were highly unlikely because of the political climate in the United States. Thus, the attack on the Philippines was a *fundamental strategic error*.

The attack on the U.S. Pacific Fleet at Pearl Harbor was designed to crush it and prevent it from executing a long planned movement westward to relieve the Philippines in the event of a Japanese invasion of those islands. However, in December 1941 the U.S. Pacific Fleet was *incapable of a significant westward movement in less than one year* because of a shortage of auxiliary type ships, which made up what was then called the “Fleet Train.” Both factors were knowable at the highest levels of the Japanese government, through its routine information and intelligence

gathering apparatus, and should have strongly influenced its decision making process.

If Japan carried out its plans to invade Malaya, Borneo, and the Netherlands East Indies, in order to ensure its oil supply and obtain other vital war materials for continued war time operations in China, it is highly unlikely that the United States would have taken any offensive military action. President Roosevelt was not inclined to ask for a declaration of war to protect British and Dutch colonial empires nor was the Congress likely to declare war solely on their account.

The United States had previously imposed a *moral embargo* on shipments to Japan, and subsequently officially embargoed scrap metal and aviation gasoline sales because of Japan's aggressive behavior in China. In July 1941, after Japanese forces moved into southern French Indochina, the U.S. froze Japan's financial assets in the United States and ended all oil shipments to Japan. Great Britain and the Netherlands followed suit. Japan, with almost no oil sources left available, faced a future with ever-dwindling oil reserves. It would be unable to continue the Army-led conquest of China, a goal dear to the hearts of Japanese imperialists, who planned to establish a "Greater East Asia Co-Prosperty Sphere", which would leave Japan dominant in the Far East, and European nations and the United States on the outside looking-in.

The Imperial Japanese Navy (IJN) was the foremost proponent of a *southward* movement, into South East Asia, to secure sufficient oil supplies for its fleet and for continued Army operations in China. The IJN, like the United States Navy, had long looked across the Pacific Ocean and viewed its distant neighbor as a potential enemy. Each Navy selected the other as a potential antagonist and war-gamed imaginary campaigns and battles. The United States developed a series of contingency war plans with Japan as the ostensible enemy, called War Plan Orange.¹ War Plan Orange was modified during the 1920s and 1930s as different fleet commanders and their war planners considered strategic realities and developing capabilities, including air and submarine. Basically, the plan assumed a



Japanese invasion of the Philippines, and a subsequent U. S. Army retreat and attempt to hold the Manila Bay area until the U.S. Fleet could move westward to assist. The IJN assumed the same and its plans called for submarine and air action to reduce the strength of the U.S. Fleet during its westward progress, and a final definitive sea battle (perhaps in the Philippine Sea) where Japanese guns and torpedoes would be triumphant, similar to the Tsushima Strait Battle of 1905 against the Russian fleet.²

Very early versions of War Plan Orange assumed that the Army would have to hold the Manila area for three to four months, during which period the Pacific Fleet would cross the Pacific and raise the siege. Later, after Japan acquired the Marshalls and Caroline islands as part of the Treaty of Versailles in 1919, that estimate increased to nine months.³ By 1933 a Naval War College strategist predicted that Phase I of the existing War Plan Orange, establishment of a first base in the Caroline Islands, might take several years. The head of the Naval War College Research Department suggested that the Office of the Chief of Naval Operations plan on a four-year war against Japan.⁴ During 1934, War Plan Orange was revised to provide for seizure of a number of island bases to furnish stepping stones for movement of the fleet towards the Philippines.⁵

In 1931 Japan's Kwangtung Army, driven by right-wing expansionist theories, began its takeover of Manchuria. The central government in Tokyo acquiesced in that action. The League of Nations protested and appointed a Commission to investigate. The Lytton Commission Report of 2 October 1932 called upon Japan to withdraw from Manchuria.

Japan's response was to officially withdraw from the League of Nations, and to announce that she would end compliance with existing arms limitation treaties in 1936.⁶ The major western nations: France, Great Britain, and the United States, took no action beyond uttering diplomatic protests over Japan's behavior.

In 1937 the Japanese took advantage of a minor night time clash in Shanghai between Chinese and Japanese troops and began a war with China. The world looked on as Japanese aircraft bombed relatively defenseless Chinese cities, and Japanese troops

ran amok in the interior. The Rape of Nanking in December 1937 in which at least several hundred thousand noncombatant Chinese citizens were raped and butchered, drew increasing condemnation but little response otherwise.⁷ On 12 December 1937 attacks on individual American citizens in China escalated into an air attack by IJN aircraft on USS PANAY, a gunboat operating on the Yangtze River. Several naval personnel were killed and others wounded, although the small ship was clearly identified with American markings. The Japanese government rapidly apologized and paid reparations and American public uproar over the incident subsided. In the second week of January 1938 a Gallup poll indicated that 70% of U.S. voters favored complete U. S. withdrawal from China: the Asiatic Fleet, Marines, missionaries, etc.⁸

On 26 July 1939, the United States denounced the 1911 Treaty of Commerce with Japan. Accordingly, after 26 January 1940 the President and Congress could dictate the terms of trade allowed with Japan. This action grew out of anger over attacks on U.S. citizens in China, the Panay incident, and other Japanese outrages in China.⁹ However diplomatic and economic action against Japan was not matched by military preparations in the western Pacific. On 23 February 1939, the House of Representatives had defeated a proposed bill authorizing \$5 million to dredge Apra Harbor, Guam for a Submarine Base. The vote was 205 to 168.¹⁰

Japanese attacks on China elicited a great deal of sympathy for the Chinese people by the United States but no popular movement to go to war to assist them. During the 1930s the United States was in the throes of isolationism, fueled by hearings of the Senate Nye Committee in 1934 which led many to believe that the United States had been led by the nose into World War I by the perfidious British and French, and profit-hungry American munitions manufacturers. A series of Neutrality Acts were passed by Congress in 1935, 1936, and 1939 to keep the United States from becoming involved in another European War that seemed to be brewing.

In 1936 Germany moved into the neutralized Rhineland in clear violation of the Versailles Treaty. France dithered and,

unsupported by Great Britain, failed to take any military action. German generals, who expected and feared a fast French military response and were prepared to rapidly extract the small, brigade-size force sent into the Rhineland, were astonished, Adolph Hitler's political intuition as to what France and Great Britain would do, or would not do, was proven correct. Emboldened, in March 1938 German forces marched into independent Austria and forcibly incorporated her into the German nation. Later in 1938 Germany threatened war over the Sudetenland, a largely ethnic-German part of Czechoslovakia. At Munich, Prime Minister Neville Chamberlain of Great Britain and French Premier Edouard Daladier gave in to Germany lest another large scale European war erupt. Germany subsequently occupied all of Czechoslovakia. The war was delayed, but for only one year.

On 1 September 1939 Germany, having just signed a secret pact with the Soviet Union agreeing to share the spoils, invaded Poland. On 3 September, France and Great Britain declared war on Germany in accordance with pledges made the previous year to support her against German aggression.

The war did not go well for the Allies. After the rapid Polish conquest, Hitler intended to attack France in the fall of 1939. However, bad weather delayed the attack until May 1940. It was startlingly successful and forced France to surrender in June 1940. Italy had also declared war on France and Great Britain. Great Britain was left with no European allies, and the threat of a German cross-channel invasion. In September 1940, Japan signed the Tripartite Pact with Germany and Italy, promising to assist the others if they were attacked (presumably by the United States).¹¹

In 1933 newly elected President Franklin D. Roosevelt began rebuilding the U.S. Fleet, which had been sharply reduced as a result of the Naval Arms Limitation Conference in Washington in 1922. That conference not only put a ten-year holiday in effect on building new capital ships (battleships, cruisers and aircraft carriers) but it restricted the United States from strengthening any of its bases west of Pearl Harbor. The National Industrial Recovery Act of 16 June 1933, primarily aimed at restoring U.S. industry from the depression, included a large amount of naval

ship construction.¹² That construction included combat ships, *but no auxiliary vessels*. On 1 July 1939, just two months before World War II began; the Navy had only two transports (AP), three cargo ships (AK), three fleet oilers (AO), and one ammunition ship (AE) in commission.¹³ The Fleet Train, a vital support component of any projected fleet move westward from Pearl Harbor in support of War Plan Orange, was almost non-existent.

In July 1940 the Congress passed an “Act to expedite strengthening of the National Defense,” authorizing the President to prohibit or control export of military equipment or munitions when necessary in the interest of national defense. This allowed him to deny war material to Japan. Subsequently sales of the following were banned:

- 5 July 1940 - Strategic minerals and chemicals, aircraft engines, parts and equipment
- 28 July 1940 - Aviation motor fuel and lubricating oil, some classes of iron and steel scrap
- 30 September 1940 - All classes of iron and steel scrap

A Gallup poll at the time showed 96% public approval, and that 90% favored a complete embargo on war materials. Between December 1940 and January 1941 additional embargoes were imposed on specific metals, ores and manufactures.¹⁴

With events in Europe encouraging greater U. S. readiness for war, on 14 June 1940 President Roosevelt had signed a massive naval expansion bill. Three days later the Chief of Naval Operations, Admiral Harold Stark, asked the Congress for four billion more dollars for a two-ocean Navy, and got it. However, again most of the new funds went for combatant ship construction. Longer construction times for warships dictated laying their keels down before work started on auxiliary vessels.

On 12 November 1940, a week after President Roosevelt’s unprecedented re-election to a third term, Admiral Stark sent him a memorandum regarding proposed U. S. strategy in the event of a war involving Germany, Italy and Japan as opponents. Stark outlined the threat presented by each *enemy* nation, dismissing

Italy as only significant in the Mediterranean area. However, both Germany and Japan presented serious threats to the United States. Of the two threats, Germany's was the most severe. If Germany defeated Great Britain, and acquired the warships of the Royal Navy as part of a surrender negotiation, the newly enlarged German Navy could conduct trans-Atlantic operations against U.S. interests. Japan presented a much more limited threat to U.S. interests, primarily to invade the Philippines. Stark's memo listed possible courses of action, and under paragraph "D", recommended that in the event of a war, the U.S. focus on defeating Germany first, and fight a strategic defensive battle in the Pacific against Japan.¹⁵ The Army Chief of Staff, General George Marshall, agreed with its proposal. President Roosevelt indicated informally that he would follow Stark's advice.¹⁶

The Plan D initiative on the part of the U.S. Navy and Army, led to combined staff talks with Great Britain in Washington in March 1941. Representatives of the U.S., British and Canadian armed services discussed strategy for dealing with the Axis powers. The hard pressed British were delighted with the American plan to adopt a defensive posture in the Far East and to concentrate on offensive action in the Atlantic and European theaters.¹⁷ One of the consequences of the newly formulated U.S. posture was the subsequent transfer of significant numbers of warships and auxiliaries from the Pacific to the Atlantic. From April through June 1941 battleships USS IDAHO, USS MISSISSIPPI, and USS NEW MEXICO were transferred, along with aircraft carrier USS YORKTOWN. Four light cruisers accompanied them (USS BROOKLYN, USS NASHVILLE, USS PHILADELPHIA, and USS SAVANNAH).¹⁸ Two squadrons of destroyers were also sent. By mid-summer, fleet oilers USS CIMARRON, USS SANGAMON, and USS SANTEE were also transferred, as were three troop transports and a few other auxiliary ships. The net result was to reduce Pacific Fleet strength by 20%.¹⁹ The move also served as a precaution against a British collapse and subsequent surrender of the Royal Navy to Germany.²⁰

As events in Europe moved towards open warfare in 1939, Japan continued its aggressive moves into China. She took advantage of the French surrender in 1940 to press the new French Vichy government for concessions in French Indochina. Her intentions were to close the Burma Road over which a trickle of American and British war material made its way to Chinese forces, and to position her air arms for future strikes into Malaya.

On 16 September 1940, the United States Congress passed the Selective Service and Training Act, the first ever peacetime draft of young men. The term of mandatory service was one year, but implementation was slow since barracks had to be constructed to house all the new recruits. Although patriotic citizens were appalled at German and Japanese aggression in Europe and Asia and ready to defend the United States if directly attacked, they were very reluctant to get involved in another European war and even less likely to go to war to defend China.

In March 1941 a Gallup poll indicated that only a bare majority of U.S. voters were willing to risk war in order to preclude Japan from seizing Singapore and the Netherlands East Indies.²¹ Whether or not it was even a majority is arguable – 40% were in favor of risking war, 39% were against risking war, and 21% had no opinion; thus 60% of the respondents were either opposed or undecided at best.

On 23 July 1941 the Japanese Ministry of Foreign Affairs informed American Ambassador Joseph Grew that the Vichy government of unoccupied France had consented to a joint French-Japanese Protectorate of French Indochina. In response, on 26 July the United States embargoed all oil shipments to Japan and froze all Japanese financial assets in the United States. Although the Dutch had a contract to deliver oil to Japan it was sold only for cash – and that cash was now frozen in the U.S.²²

In August 1941 the Selective Service and Training Act came up for renewal in Congress. Soldiers were chalking OHIO on their barracks walls, which translated as “Over the Hill in October.” It was not a threat to desert but rather them looking forward to the end of their one year obligated service. At that time Nazi Germany controlled almost all of Europe and had invaded the USSR in late

June. Japan was running amok in the Far East. Despite these threats, the House of Representatives (HR) only extended the Selective Service Act by one vote (203 to 202). The HR, its members elected every two years, represented very mixed American public opinion regarding the wars in Europe and the Far East and a very strong desire on the part of many Americans to stay out of either war. A rider was attached to the Selective Service bill, which prohibited sending draftees overseas without Congressional authorization.

One of the tasks of the Japanese Embassy in Washington, and particularly its political councilor, was to monitor American public opinion as it reflected American-Japanese relations and to report on the subject to the Japanese Foreign Ministry in Tokyo. Another fundamental task, which fell to the Japanese naval attaché, was to monitor and report on the order of battle of the U.S. Navy. This includes numbers of significant warships, such as battleships, aircraft carriers, cruisers and destroyers, and their armaments and readiness. If the Japanese Naval General Staff in Tokyo was doing its job correctly, it should have also specified a need for information on vital auxiliary vessels, those necessary for the U.S. Fleet to carry out a westward fleet movement towards the Philippines. Both types of information were freely available: American political sentiment through published Gallup polls; and information pertaining to fleet units from open publications, the press and a study of Congressional authorizations and appropriations.²³

In mid to late 1941 the United States Army beefed up its defenses in the Philippines both as a deterrent against a Japanese attack, and a defense if an attack took place. Secretary of War Henry Stimson authorized the delivery of 272 B-17s. General Marshall promised to double the number of Army troops in the Philippines by the end of 1941. General *Hap* Arnold, Chief of the Army Air Forces, scheduled 360 heavy bombers and 260 pursuit planes to arrive in the Philippines not later than April 1942. By 7 December 1941 about 10% of the bombers, 40% of the pursuit planes, and half the troops had arrived.²⁴

As events progressed Great Britain, the Netherlands and the United States were well aware that a Japanese military offensive into Southeast Asia was likely. The Netherlands East Indies (current day Indonesia) was a prime target, primarily its oil fields. In the Far East local talks between Australian, British, Dutch and American military officers were held to discuss coordination in the event of a Japanese attack. What was not clear was whether the United States would enter a war against Japan if the Philippines were not attacked, or whether Great Britain and the Netherlands would declare war against Japan if only the Philippines were attacked. Those were questions that the military commanders could not answer. They could make assumptions but they were tenuous. Coordination was discussed but concrete plans were impossible.

On 7 November 1941 President Roosevelt queried his Cabinet officers about their opinions as to whether Congress would support a declaration of war if the Japanese attacked Malaya, Borneo and the Netherlands East Indies but left the Philippines alone. They responded unanimously that Congress would declare war.²⁵ That probably reflected the level of support for the President's unpublicized policies by the Cabinet officers involved, but not necessarily the reality of public opinion and its Congressional reflection.

Time magazine, in its 10 November 1941 edition in discussing current world affairs, noted, "no declaration of war (against Germany) would pass Congress."²⁶ This was at a time when the American public perceived Nazi Germany as a much more serious threat to American interests than that posed by Japan. Morison states that President Roosevelt was unsure if he could get a declaration of war from Congress if Japan attacked British, Dutch or French possessions.²⁷

The reality was that the President and his administration had taken action in July 1941 to push Japan's leaders into an untenable internal political position by cutting off Japan's oil supply. Most of the American public thought that action was appropriate, given Japan's behavior. A 7 September Gallup poll thought that the



United States should *take steps* to restrain Japan (in the Far East) even if it risks war (70% agreed).

What the public did not know was that Japan's response to the complete oil embargo *would almost certainly involve a war against the United States, Great Britain and the Netherlands*. Senior civil officials in the U.S. government knew it, as did senior Army and Navy officers. They expected Japan would go to war to seize the resources in South East Asia but hoped that an attack would be delayed until early 1942. If the public and the Congress had been presented with the proposition that the U.S. should cut off Japan's oil supply, and oh by the way, that will inevitably lead to a war with Japan – the public response might have been somewhat different.

Japan's senior leadership, mostly but not entirely military, should have been aware of several critical points: first – an attack on Malaya, Borneo and the Netherlands East Indies would not necessarily bring about a declaration of war by the United States *if the Philippines were left alone*. American public opinion would probably not have allowed a declaration of war under those circumstances. The small U.S. Asiatic Fleet did not represent a serious threat to Japanese movements in South East Asia. The U.S. Pacific Fleet, based at Pearl Harbor, *was not capable of steaming west to relieve the Philippines in less than one year*, ample time in which to consolidate Japanese conquests in Southeast Asia and to prepare defenses. In *War Plan Orange*, Edward S. Miller's comprehensive treatise on the plan, he notes that in 1941 the War Department historian observed that the Army thought it might take two years for the Navy to fight its way back across the Pacific.²⁸

In discussing the Pearl Harbor attack in *The Two Ocean War*, distinguished naval historian Samuel Eliot Morison states "In view of the weakness of that Fleet (of which they were well appraised), and the length of time that it would take to reach Philippine waters it is unaccountable that (Admiral) Yamamoto thought its destruction necessary before war fairly began."²⁹ He goes on to state "The decision for a man of Yamamoto's intelligence was strange; for a strategy it was not only wrong but disastrous."

A little later in the same volume Morison discusses the matter of a possible Congressional declaration of war in the event of a Japanese attack on non-American possessions. He writes “And it is doubtful whether Congress would have considered as a *causus belli* a Japanese move into Thailand, British Malaya or the Netherlands East Indies.”³⁰

In late 1941 the U.S. Pacific Fleet had only four fleet oilers equipped for refueling warships underway, but needed a total of 25 for projected extended operations.³¹ In that same period, Admiral Husband Kimmel, the Pacific Fleet commander, responded to correspondence from Admiral Stark, who was needling him about long range contingency plans to seize the Japanese naval base at Truk (Base Two in War Plan Orange documents). Kimmel retorted that he had only one troop transport available but would need some 30-40 troop transports, and that he had scarcely any other auxiliary craft.³²

Actually on 7 December 1941, the Pacific Fleet Train consisted of eleven fleet oilers (AO), six of which had been commissioned in 1922 or earlier. Those were capable of only 14 knots at best. Of the five modern, high-speed oilers (design speed of 18 knots); two were in Mare Island Naval Shipyard in Vallejo, California for repairs and modification. In addition, the Train included two ammunition ships (AE). The older one dated to 1920 (design speed 13 knots) and the other was commissioned in 1940 (design speed 15 knots). The Train also included five general cargo ships (AK), four provision ships (AFS) and two general stores ships (AKS). In addition, there were ten transports (AP), and three repair ships (AR). These types of ships *in adequate numbers* were absolutely necessary for a fleet movement into the western Pacific Ocean.

War Plan Orange had been officially disestablished on 17 December 1940, and replaced by Joint Plan Rainbow Five. The plan called for the Pacific Fleet to capture “Base One”, somewhere in the Caroline Islands by M+180 (180 days after the start of war), and to have the base completed by M+180 to M+360, nearly a year later. Base Two (probably Truk) was to be captured from “Indefinite to M+360”, and completed in “unspecified years.”³³

Once completed, Base Two would serve as a springboard for the fleet to proceed to the Philippines. It was obvious to American naval war planners that fighting their way back across the Pacific to the Philippines in the face of Imperial Japanese Navy opposition would involve a great deal of effort and time. That same limitation should have been clearly apparent to Japanese naval war planners and senior admirals.

On 7 December 1941, in the immediate aftermath of the Pearl Harbor attack, Admiral Stark directed execution of the war plan, which included the capture of the Caroline and Marshall Islands; and subsequently the capture of Truk. He modified his directive to tell Kimmel to defend the Hawaiian Islands, Johnson Island, Wake Island and Palmyra Island; and to protect the sea lines of communications from the west coast to Hawaii; and to prevent Japanese excursions into the western hemisphere.³⁴

Admiral Nagano Osami, the Chief of the Japanese Naval General Staff, was first exposed to the Pearl Harbor attack plan in August 1941, at a war game held in Tokyo at the Naval War College, sponsored by Admiral Yamamoto, the Commander Combined Fleet. Admiral Nagano apparently considered the Pearl Harbor attack “a strategic necessity.”³⁵ It is hard to imagine why he thought so. The U.S. Pacific Fleet was not equipped with adequate support ships to undertake a rapid movement to relieve the Philippines Islands. Both the Combined Fleet staff and the Naval General Staff in Tokyo should have been well aware of that fact through basic naval order of battle reporting by Japan’s naval attaché in Washington, and their own analysis.

During pre-attack discussions Admiral Yamamoto emphasized that if Pearl Harbor were not attacked; the U.S. fleet might advance across the Pacific and attack Japan while Imperial Navy forces were occupied in Southeast Asia.³⁶ Not all Navy General Staff personnel agreed that the U.S. fleet would be a problem; some felt that the U.S. fleet could not advance rapidly across the Pacific, perhaps a reflection of more careful analysis of U.S. fleet capabilities and limitations.³⁷

In 1944 Captain Vincent R. Murphy, who had been assistant war plans officer to Admiral Kimmel, testified at the Admiral

Thomas Hart Inquiry, that the Rainbow Five war plan called for capture of Japanese bases in the Caroline and Marshall islands, and then Truk, before moving west to the Philippines.³⁸ Murphy stated that prewar estimates were at least six to nine months to get moving. He also noted that American naval planners assumed that Japanese naval planners had the sense to realize what the timing must be. He said that the Department of State presumed that there was enough political wisdom in the Government of Japan to avoid unqualified aggression that would bring the United States, angry and united, into the war. Referring to the Pearl Harbor attack, he stated, "On a strategic level it was idiotic. On the high political level it was disastrous."³⁹

The war began with Japanese air attacks on Pearl Harbor and the Philippines on 7 and 8 December respectively. A large portion of Pacific Fleet battleships were sunk at their moorings at Pearl, and half of General Douglas MacArthur's B-17 bomber force was destroyed at Clark Air Base in the Philippines. Japanese amphibious and naval forces rapidly pushed into Malaya, Borneo, the Netherlands East Indies, and the Philippines, overrunning hastily cobbled-together allied forces. It was not until November 1943, nearly two years after the Pearl Harbor attack that the United States Navy was ready to attempt an amphibious assault on the Caroline Islands, to seize "Base One", the first step back towards the Philippines.

Morison's Volume 7, *Aleutians, Gilberts and Marshalls, Appendix II* provides a detailed breakdown of the task forces and groups involved in the invasion of the Carolines. The Fleet Train vessels included 17 transports (AP), four cargo ships (AK), two Landing Ship Docks (LSD), 14 fleet oilers (AO), two hospital ships, (AH) and two repair ships (AR). In addition, there were a variety of fleet tugs and salvage ships involved.⁴⁰

The size of the Fleet Train in 1943 clearly emphasizes the point that the Pacific Fleet was incapable of such westward movement in December 1941. It could not have relieved the Philippines under any circumstances in less than one year and thus presented no threat to planned Japanese operations in Southeast

Asia in late 1941. Thus, the attacks on the Philippines and Pearl Harbor were grave mistakes.

ENDNOTES

¹ The color used identified the country targeted. Japan was Orange, Germany - Black, and Great Britain - Red.

² Samuel Eliot Morison, *The Rising Sun in the Pacific*, 82

³ Samuel Eliot Morison, *The Two Ocean War*, 18

⁴ Edward S. Miller, *War Plan Orange*, pp. 168-169. The first Central Pacific advance began two years after the Pearl Harbor attack.

⁵ John Prados, *Combined Fleet Decoded*, 87. Afterwards, Prados.

⁶ Samuel Eliot Morison, *The Two Ocean War*, 19.

⁷ Iris Chang, *The Rape of Nanking*, 4

⁸ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 18

⁹ *Ibid.*, 39

¹⁰ *Ibid.*, 33-34

¹¹ Samuel Eliot Morison, *The Two Ocean War*, 29

¹² *Ibid.*, 19

¹³ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 31

¹⁴ *Ibid.*, 59-60

¹⁵ The memorandum became known as “Plan Dog.” “Dog” was the phonetic pronunciation of the letter ‘D’ at that time.

¹⁶ Edward S. Miller, *War Plan Orange*, 269-270.

¹⁷ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 51

¹⁸ Light cruisers carried 6-inch guns, while heavy cruisers were armed with 8-inch guns.

¹⁹ Samuel Eliot Morison, 57

²⁰ Edward S. Miller, *War Plan Orange*, 268-269

²¹ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 61-62.

²² *Ibid.*, 61-62

²³ The author served as Defense and Naval Attaché in Toyo 1978-1981 and was familiar with the process of collecting information on another nation’s armed forces. While information about Japanese naval rearmament in the late 1930s was very difficult to obtain, that was not true in the United States. Fahey’s *Ships and Aircraft of the U.S. Fleet* began publication in 1939.

²⁴ Edward S. Miller, *War Plan Orange*, 61-62

²⁵ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 72-73

²⁶ A November 22 Gallup poll indicated that 63% of respondents opposed a declaration of war against Germany (at that time).

²⁷ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 54.

²⁸ Edward S. Miller, *War Plan Orange*, 62

²⁹ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 40

³⁰ *Ibid.*, 45

³¹ Edward S. Miller, *War Plan Orange*, 308

³² *Ibid.*, 283

³³ *Ibid.*, 279

³⁴ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 219-220

³⁵ *Ibid.*, 82

³⁶ John Prados, *Combined Fleet Decoded*, 141

³⁷ *Ibid.*, 143.

³⁸ The Admiral Hart Inquiry was convened by the Secretary of the Navy. It sat from 15 February 1944 to 15 June 1944 to ensure that important evidence would not be lost.

³⁹ Samuel Eliot Morison, *The Rising Sun in the Pacific*, 132n

⁴⁰ Samuel Eliot Morison, *Aleutians, Gilberts and Marshalls, Appendix II*, 336-342

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THE ZIMMERMANN TELEGRAM 100TH ANNIVERSARY JANUARY – MARCH, 1917

Dr. Anthony Wells

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In 1972 I was appointed a Senior Lecturer and Tutor, as a newly promoted Lieutenant Commander, Royal Navy, at the Royal Naval College Greenwich. The then Editor of *The Naval Review*, the late Vice Admiral Sir Ian McGeoch, KCB, DSO, DSC, a distinguished World War two Royal Navy submarine veteran, published in 1973 two articles of mine in successive editions, entitled: Admirals Hall and Godfrey: Doyens of Naval Intelligence (Parts 1 & 2). It is my privilege forty-four years later to write a more detailed account of one of the greatest intelligence triumphs of British history for *The Submarine Review* that I touched on in those articles, namely the Zimmermann Telegram, whose 100th anniversary is now with us, January to March, 1917. Admiral Sir Reginald, *Blinker*, Hall, Royal Navy, was the architect of this most famous intelligence coup of all time.

First, some background on Blinker Hall (1870-1943). He was the son of the first Director of British Naval Intelligence (DNI), William Henry Hall, so intelligence was in his blood when he entered the Royal Navy in 1884. As a Captain, Blinker Hall was the DNI throughout World War One, and because of his huge successes he was promoted Rear Admiral in 1917, after the Zimmermann Telegram. Later he became Vice Admiral, 1922, and Admiral, 1926. Second, let us quickly review the relevant Naval Staff structure in 1914. The British Naval Intelligence Department (NID) was created in 1887, with mainly the defense of British imperial trade interests as a primary driver. In 1887 there were a

mere ten staff officers with a budget of about five thousand pounds a year. Many in the Royal Navy leadership were against such a Staff, with senior officers such as Admiral Fisher disclaiming in no uncertain terms that a Staff would, “convert splendid sea officers into very indifferent clerks”.

When Hall became the DNI, and war was declared in August, 1914 he faced much intransigence characterized by a combination of prejudice and ignorance. Operational intelligence as we understand it today was primitive to nonexistent. Hall took one extraordinary step that was to revolutionize naval warfare and which, with the benefit of hindsight today, may seem obvious, but in 1914 was clouded in fog. Hall realized that exploitation of wireless telegraphy and its cryptographic underpinnings could be war winners, what modern parlance would characterize as technical game changers. Hall built wisely on the work of Sir Alfred Ewing, a professor of Mechanical Engineering at Cambridge, who was brought into the Admiralty as the Director of Naval Education and then created the first ever cipher team. Hall’s *Room 40* became the heart and soul of naval intelligence in World War One, building on Ewing’s foundations, to create a cadre of first class cryptographers. Hall’s single biggest problem was interfacing with the Operations Division of the Admiralty where there was institutional bias against new and mainly civilian technical experts advising operators on key intelligence from wireless intercepts. The issue was clear to Hall: The operators did not wish to share their operational data with Room 40 civilian cryptographers and the latter were deprived of the key opportunity to both analyze and interpret cryptographic intelligence in light of current and planned British naval operations and, most of all, their German adversaries. This failure to make the wise use of such intelligence reached its nadir at Jutland, a subject that has been much underrated in understanding why Jutland was not the success that the Royal Navy wanted and the country expected.

However, between January and March, 1917, Blinker Hall achieved the most remarkable triumph, unimpeded by anyone in the Admiralty, the Foreign Office, or indeed within the Cabinet Office. What I am about to describe is quite extraordinary. One of



my mentors as a young man, the late Captain Stephen Roskill (the official historian of the Royal Navy in World War Two), wrote in his fine book, *Hankey: Man of Secrets*, “Today, when the Foreign Office exerts a paramount influence over all intelligence activities, it may seem extraordinary that until about 1919 the DNI should have held virtually all the threads in his own hands, and should have decided on the time and manner of using the knowledge that he possessed.” (Volume 1, page 80). This sums up Blinker Hall perfectly. What Hall did was in essence quite simple: He acted with the greatest skill, acumen, and daring, and ignored all and everyone who may have been in his way in achieving what he considered his absolutely critical duty in supporting the vital national interests of the United Kingdom, against all enemies, foreign and domestic. Hall’s other key attribute was simple also: He was successful. Another mentor of mine from my days at Greenwich, introduced to me by my boss, Professor Bryan Ranft, was the great American Naval Historian, Arthur Marder. The latter wrote of Hall, after the Admiralty shake up of 1917 (heads rolling after the Jutland debacle): “Also kept on was Captain Reginald Hall, the DNI (promoted to Rear Admiral in April, 2017), considered by many as one of the few brains of the war, which, indeed, he was” (Arthur J. Marder: From *Dreadnought to Scapa Flow*, Volume 4. page 61). As an aside, do read his masterpiece on the Royal Navy. All these years later his volumes have never been improved on by modern scholars.

So what did Hall get up to between January and March 1917 that will forever live in the annals of any intelligence organization worldwide? First, the overall political-military context in which Hall and his Room 40 team were operating. The Americans were not in the war in January, 1917. The Germans were planning on restarting unrestricted U-boat warfare from February 1, 1917 in an attempt to bring the British economy to its knees by attacking its most vital national interest, seaborne trade. This one fact could be the tipping point for the American President to convince his people to join the war on the Allied side, remembering that in the United States in 1917, anti-British sentiment ran high, with a volatile and outspoken Irish-American and German-American

population. Second, on January 11, 1917, the German Foreign Minister, Arthur Zimmermann, presented an encoded telegram to the US Ambassador in Berlin, James W. Gerard, who agreed to transmit the telegram in its coded form. The American Embassy transmitted this telegram on January 16, 1917, five days later.

Why would the German Foreign Ministry be using the American Embassy to send its messages, in this case (the Zimmermann Telegram) via Washington DC to the German Ambassador in Mexico City, Heinrich von Eckhardt? The British had cut the German transatlantic cable at the beginning of the war in 1914. The US was neutral in 1914 and permitted German limited use of its Europe to US transatlantic cable mainly because President Woodrow Wilson was encouraging peace talks and wanted to ensure that Berlin could talk with the US diplomatically. Zimmermann's telegram was instructing the German Ambassador in Mexico City to inform the Mexican President, Carranza, that if the US entered the war against Germany then Germany would support Mexico financially in fighting a war against the US to regain territory lost to Mexico in the wars with the United States, a bombshell of enormous proportions if made aware to the US government and people.

Hall's Room 40 was reading all the American traffic, (that ran via cable from the US embassy in Denmark), and including all German traffic, encrypted or otherwise, that was forwarded from the US Embassy in Berlin. The US cable went via the UK, and the intercept point was at a relay station at Porthcurno, near Land's End. Hall's civilian cryptographers Nigel de Grey and William Montgomery brilliantly decrypted the Zimmermann telegram the following day after interception by the British, January 17, 1917. Why was this so speedy and efficient? Hall and his team had also pulled off two critical earlier coups. Room 40 had captured secretly during the Mesopotamian campaign the German Diplomatic Cipher 13040 and, as a result of very good clandestine relations with the Russians, Hall obtained the critical German Naval Cipher 0075 (the 007 part will not be lost on readers). The Russians had obtained this from the German cruiser Magdeburg after it was wrecked. Hall had secretly nursed Russian relations.

The genius of Hall was what he did and did not do next. The Americans may well think that this was all a devious British plot to bring the United States into the war. The telegram was brutally explicit in two regards: On February 1, 1917, the Germans would resume unrestricted U-boat warfare, and a German-Mexican military alliance was proposed, with Germany as the funding source. Hall needed a cover story for his knowledge of the German codes and to avoid the Americans knowing that Room 40 was reading theirs and others mail, while at the same time convincing Woodrow Wilson and his government that the telegram was real, not a British forgery. Hall never once consulted anyone in the British Foreign Office or within the Admiralty Staff. He acted with his staff totally alone. He then decided on his *Deception Plan*. This was the real genius of this extraordinary brilliant work by Hall and his team. Hall knew one key fact: The German Embassy in Washington DC, once it received the telegram, would have to transmit it to the German Embassy in Mexico City. Hall knew that they used a commercial telegraph company. NID agents bribed a Mexican telegraph employee to yield the cipher, thereby enabling Hall to inform the Americans that this had come directly from the Mexican Telegraph company from Washington DC. Simple, but brilliant. Hall also, in parallel, took another quite remarkable action, by great timing, by doing nothing until the Germans announced unrestricted U-Boat warfare on February 1, 1917, after which the US broke off diplomatic relations with Germany on February 3, 1917. Hall then did two key things. He only informed the British Foreign Secretary on February 5, 1917 with an emphatic request that the British Foreign Office delay all diplomatic moves with the US until Hall himself took various actions.

With Foreign Office knowledge Hall then met with the Secretary of the US Embassy in London, Edward Bell, on February 19, 1917, and the following day Hall met with the US Ambassador to the Court of St. James, Walter Hines Page, and handed him the telegram. Three days later Ambassador Page met with the British Foreign Secretary, Arthur Balfour, and on Hall's quite emphatic advice he gave the American Ambassador a copy of the stolen

Mexican cipher text and the English translation of the full Zimmermann telegram. After some analysis and discussion in Washington President Wilson was convinced. He went ahead and released the telegram to the US press on February 28, 1917, and this immediately inflamed American public opinion against both Germany and Mexico. Wilson and his top aids realized also that they had to protect the British *Mexican Cipher* and British code breaking capabilities.

Further positive news for Hall and his Room 40 team was that the Mexican President had been advised that German funding was unreliable, and that a successful war with the United States was unlikely. President Venustiano Carranza was also advised that even if German funding did materialize their sister South American nations, Argentina, Brazil and Chile, from whom Mexico would purchase arms, would likely be unsupportive of a Mexican alliance with Germany and a war with the United States. Nonetheless the Mexican government did not enforce an embargo against Germany, much to the chagrin of the United States, and Mexico continued to do business with Germany throughout World War One. However, Mexico did not repeat history in World War Two, declaring war on the Axis Powers on May 22, 1942.

The final coup de grace was delivered by none other than Arthur Zimmermann himself, who rashly announced on March 3, 1917, in a press conference, that the telegram was in fact true. He then very naively followed this with a statement in the Reichstag on March 29, 1917 that his plan had been for Germany to fund Mexico only if the Americans declared war on Germany. The United States Congress declared war on Germany on April 6, 1917, President Wilson having asked for this Declaration on April 2, 1917.

Hall and his Room 40 team had triumphed and Hall was promoted to Rear Admiral shortly thereafter. What does all this tell us for today in an era when political control of intelligence is intense, resulting from decades of experience and restructuring, since the heyday of Blinker Hall, John Godfrey, Bletchley Park, and the American ONI and OSS? The politics of intelligence have been intense since Winston Churchill and Franklin Roosevelt

created the Special Relationship during World War Two. Are we any better off today in terms of the vital national security interests of the UK and the US than during World War Two? There are as many interpretations of this issue as there are intelligence specialists and their political overseers. One domain that in the opinion of your author is both germane and neglected is the ethics of intelligence, the body or code of behavior that should guide and direct intelligence and the government customers that they serve. Intelligence is about reliable information delivered in a timely manner that helps decision makers in ways that will lead to successful outcomes. To have a well thought through and agreed professionally constructed code of ethics may be a key for avoiding future controversy and dilemmas after furors following events such as the Snowden revelations and betrayals.

Admiral Hall was a great admiral, a patriot of enormous proportions, and a consummate intelligence professional. He acted independently with a hugely trusted and a highly capable staff that was loyal, competent, and secure. Does Blinker Hall remain our man in the modern era? Perhaps we can all still learn a lot from Admiral Sir Reginald “Blinker” Hall?

Further Reading: The original classic on the Zimmermann telegram was written by the American historian and author Barbara Tuchman, who won the Pulitzer Prize twice: *The Zimmermann Telegram*. New York. Viking Press. 1958. A further classic is by another American, David Kahn: *The Codebreakers*. Weidenfeld & Nicholson. 1966. For a detailed study of British naval intelligence that includes Admiral Sir Reginald Hall’s tenure as the Director of British Naval Intelligence during the Great War, and also the detailed intelligence background and specific cryptological matters that pertain to the Battle of Jutland read my: *Studies in British Naval Intelligence, 1880-1945*. Anthony R. Wells. University of London. 1972. This may be accessed without charge by entering the title on the worldwide web and either reading directly or downloading.

SUBMARINE COMMUNITY

PEARL HARBOR REMEMBRANCE CEREMONY

**COMMEMORATING THE
75TH ANNIVERSARY OF THE ATTACK**

**WEDNESDAY, 0900, 7 DECEMBER 2016
DISCOVERY PARK, SACRAMENTO, CA**

**REMARKS BY
RADM WINFORD G. (Jerry) ELLIS, USN, RET.**

Thank you for that nice introduction. My mom and dad would have been very proud!

Good morning ladies and gentlemen. It is an honor and privilege to speak to you on this important occasion – “remembering Pearl Harbor on it’s 75th anniversary”. My thanks to the SubVets, Gold Country Base, for inviting me.

It is a beautiful morning here maybe similar to that Sunday in Hawaii 75 years ago, but probably much cooler. No one was expecting the Japanese to conduct a surprise attack on Pearl Harbor on our naval fleet there, but it happened to devastating effect–

- 8 battleships were heavily damaged – two were a total loss – USS ARIZONA and USS OKLAHOMA. In all 18 ships were sunk or destroyed
- 167 U.S. aircraft were destroyed and 159 damaged
- 2403 military personnel and civilians killed. Another 1178 wounded “it was terrible in every respect”

On December 8th, the day after the attack, President Roosevelt, in a joint session of congress stated and I quote “yesterday,



December 7, 1941, a date that will live in infamy—the United States was suddenly and deliberately attacked by naval and air forces of the Empire of Japan.....no matter how long it may take us to overcome this premeditated invasion, the American people will, through their righteous might, win through absolute victory.....with confidence - in our armed forces, and with the unbounding determination of our people - we will gain the inevitable triumph, so help us God. I therefore ask the congress to declare that since that dastardly and unprovoked attack by Japan on Sunday.... a state of war has existed between the United States and Japanese Empire”... unquote. Congress concurred with the war declaration.

Today, we remember that attack.

The response from our nation was unbelievable. Almost overnight, the United States mobilized and turned its tremendous industries to war production –

- Automobile makers became manufacturers of tanks, armored vehicles, trucks, jeeps
- Aircraft makers grew in size and numbers, producing bombers, fighters, transports
- Shipyards grew and ships of all types were built for the war effort
- The entire nation went to work for the war and life changed significantly for everyone

It is often noted that Japanese Admiral Yamamoto was quoted as saying, – “I feel all we have done is to awaken a sleeping giant and filled him with terrible resolve!”

World War II was relatively short (four years) when compared with wars since then, particularly the Cold War, Vietnam, Iraq, and Afghanistan, but during those four years, Americans sacrificed immensely and produced incredible results with their industrial might.

- 310,000 aircraft were built
- 120,000 ships including, carriers, submarines, destroyers, and small supply ships
- 2,400,000 vehicles
- 12,500,000 rifles and carbines
- 100,000 tanks and armored vehicles

And that is but a few examples!

I would question whether we could do that today since we have shifted a large percentage of our industrial and manufacturing capabilities overseas

At the same time, the American people had to live without many of the things they had before the war. A system of rationing was implemented throughout our nation.

It was a costly war for the United States and millions served in our military – over 12 million men and women were in uniform when the war ended. In addition, over 400,000 U.S. military were killed and another 670,000 wounded. However, that is a small part of the estimated 50 - 80 million who died worldwide

The people of the United States who served in the military or worked in support of the war are now known as “the greatest generation” and rightfully so. However, I believe that the generations that have followed them are just as strong because they stand on the shoulders of the “greatest generation”. They stand on a sturdy foundation of sacrifice and accomplishment. We will always be indebted to and never forget the “greatest generation”.

A few personal thoughts or remembrances that I have learned in my life.

When the Pearl Harbor attack occurred, I was just over 3 months old (now with a little math, you will know my age today!!) We lived in Cleveland, Tennessee, a small town next to the Georgia state line and 30 miles east of Chattanooga. My dad was 27 years old and was a short order cook in a small diner that had about 20 stools. He had grown up in the hills of Tennessee north of Knoxville and was from a relatively poor family. He quit school at age 16 and went to work on farms and a lumber mill. Eventual-



ly, he did return to school and graduated from SGT York high school, Jamestown, TN at age 21, with high grades. I know this because I have his report card!!

Shortly thereafter, he took a bus to Cleveland and got a job in a small diner.

After the events at Pearl Harbor, he joined the navy but only after he had ensured that my mom and I were taken care of. Mom worked in a chair factory. An older couple from our church moved into our home and with the sharing of resources, we lived reasonably well. My dad became a torpedoman in the navy but because of an eye sight problem spent the next years until the war ended in August 1945 building torpedoes at the Mare island shipyard in Vallejo, CA. Although I don't remember many details from this era, I do clearly remember my dad sending a suitcase home that was filled with goodies such as candy, gum, and other hard to get items. I remember that suitcase being in the family for many years after the war.

After the war, dad often talked fondly about his navy years as I grew-up saying that he would have stayed in the navy except they just didn't pay enough to support a family. He was a great influence in my making the navy my career. He was a wonderful dad, very humble and considerate, who went on to be very successful in the restaurant business running his restaurant for over 44 years in Fort Myers, Florida. Opening in 1949, it was the first air conditioned restaurant there. At the same time, he became an important and well respected leader in the community. He was a good example of a man who willingly served in the navy, loved his country, appreciated what god had given him and always took care of his family.

I've just told you about a man that did what he could to serve his country, a man of honor that cared for his family and community, and I reflect on those that lost that same opportunity on one Sunday morning in Hawaii. My dad, and men and women, like him, made it possible for me to pursue all our nation has to offer. A full career in the navy that included being the Commander Submarine Force, U. S. Pacific Fleet 1996-1998.

Being COMSUBPAC was certainly a highlight of my career. Rosemary and I lived in quarters “K”, our home on Ford island about 75-80 yards from the USS ARIZONA memorial. Our home called Hale Loa, *long house* was built in the 1930’s over a gun emplacement that had been constructed in the early 1900’s. The guns had been removed but the various rooms associated with the emplacement created the basement of our home. During the attack on Pearl Harbor, the basement served as a bomb shelter for many of the people living nearby. In fact, it also was a place to which several severely injured men on the USS ARIZONA crawled up the beach and into the gun turrets where they received medical help. Unfortunately, many died. I could never forget that story and the sacrifices that were made by the men on ARIZONA. During the time we lived there, there was no causeway or bridge from the mainland to Ford Island. People took a ferry that ran back and forth throughout the day and most of the night. The normal mode of transportation for COMSUBPAC was to be picked-up each morning and brought home in the evening by the Admiral’s barge which was a nice boat of approximately 30 feet in length. Each morning, I would walk out to the end of the pier and there would be two sailors all spiffy in their uniforms who would take me to my office across the harbor. Each time we passed the Arizona memorial, I had them stop a few yards from it and we would silently salute the battleship memorial and say a little prayer for the hundreds that are still entombed in the ship as it sits on the bottom of the harbor. I will forever remember this Pearl Harbor tragedy and the thousands that were lost in the attack. May God bless their souls.

Today, we remember Pearl Harbor and the horrific bombing attack. We remember those who were lost or injured, and we remember our veterans from that war, those that are still living and those that have left us. But, really, we remember all veterans alive or deceased who voluntarily serve our nation whether in the military, in law enforcement, in emergency response, in our fire departments, and all others that provide us security. They keep us safe and free from harm and allow us to live a life of freedom and liberty. All of them continue to serve us very well and we are

blessed to have these dedicated men and women, many of them are with us today.

The United States is an incredible and beautiful nation. Yes, we have a few faults, but, overall, we are clearly the best nation in the world - let us keep it that way!!!

Thank you for the opportunity for Rosemary and me to share this day of remembrance with you. God bless you and our veterans from all branches of our military and those that provide service to our nation, and God bless the United States of America.

Let us always remember Pearl Harbor and our veterans and the sacrifices they made

Thank you.

UNITED STATES SUBMARINE VETERANS, INC.

**“There is but one requirement for membership,
Have you ever worn dolphins?”
(and if you have to ask, you haven’t)**

by Mr. Chuck Emmett

After World War II, veterans of the wartime Submarine Force organized the “US Submarine Veterans WWII” open to those who served during the actual combat period. But, their group was adamant; no sub sailor could join who did not serve during the war years.

Motivated by this limitation, some members organized another group, the United States Submarine Veterans Inc. whose only requirement was to have been qualified in submarines.

These far-viewing shipmates shared a belief in the need for an organization open to all submarine qualified shipmates, from the very beginning of the Submarine Service through to the present and into the future - not limited to just those who served so ably in the second World War. They wanted to make it known that those lost on submarines, in the line of duty for their country, will never be forgotten.

Starting in Groton Connecticut, the group started contacting past shipmates. Favorable responses came from Massachusetts, New York, New Jersey, Pennsylvania and many more from Connecticut.

In 1963 members from several northeast states held several meetings to firm up plans for what was to become the USSVI. The final meeting was held on 12 October, 1963 in Orange, NJ and the *United States Veterans* was born. The organization was officially chartered and incorporated in the State of Connecticut, as recorded on May 22, 1964 under that name. But, informally, we shall always be known as *SubVets*.

Our organization’s purpose is stated:



“To Perpetuate the memory of our shipmates who gave their lives in the pursuit of their duties while serving their country. That their dedication, deeds and supreme sacrifice be a constant source of motivation toward greater accomplishments. Pledge loyalty and patriotism to the United States of America and its Constitution.

In addition to perpetuating the memory of departed shipmates, we shall provide a way for all Submariners to gather for the mutual benefit and enjoyment. Our common heritage as Submariners shall be strengthened by camaraderie. We support a strong U.S. Submarine Force.

The organization will engage in various projects and deeds that will bring about the perpetual remembrance of those shipmates who have given the supreme sacrifice. The organization will also endeavor to educate all third parties it comes in contact with about the services our submarine brothers performed and how their sacrifices made possible the freedom and lifestyle we enjoy today.”

Our organization currently has just over 13,000 members organized in 165 local chapters called *Bases* in all the states except Alaska. Bases are geographically grouped into 22 Districts and further collected into four Regions. The Bases and Districts are headed by elected *Commanders*. While the Regions are headed by Directors. The four Regional Directors plus five directly elected national officers, a selected *District Commander of the Year* and the Immediate Past National Commander all form the Board that governs USSVI.

For members who cannot connect with a local Base, there are four non-geographic cyberspace or internet Bases that are open to all.



In addition to the comradery of Base meetings, one of the more popular ways for SubVets to support and *live* the spirit of first paragraph of our creed is through public appearances in parades and static displays. Many Bases have built trailer-mounted models of U.S. submarines, some are like this precise 1/15 scale copy of the USS PHOENIX (SSN-702) created by Perch Base of the namesake city. These floats, supported by eager Base members, also make appearances at schools, civic clubs and other events where submarine history is told first person.

But, like so many veterans in organized groups, Sub-Vets are aging. The days of walking the length of any parade are gone for most of us. Instead, trailers or other high visibility vehicles carry us while we wave, smile and look nautical.



Our USSVI and local Bases have a strong social sense. We make a major commitment to our “Kap(SS) 4 Kid(SS)” program. Pronounced “caps for kids,” we arrange visits to children’s hospitals and wards where children are battling severe and sometimes terminal illnesses. We hand out pink and blue submarine ball caps (the program name,) certificates and other



small, approved items to try and bring a little diversion and cheer to their hospital stay.

This has proven to be an exciting time to be a member of USSVI as we develop our business plans and move from what was effectively a loosely run reunion group to a more business-like non-stock corporation as we should have been. Our new website is in its final stages of being tied together the way we want it after a couple of false starts and delays and we hope to go on-line with it around April 2017. Our upcoming 2017 National Convention at the Rosen Shingle Creek Resort in Orlando is contracted and details are developing nicely. Our 2018 Convention is a planned Caribbean Cruise out of Fort Lauderdale on Holland America. The dates and costs are still pending the release of the 2018 cruise schedules by Holland America. 2019 plans are still in the early stages, but Texas is looking good with bids expected in both Fort Worth and Austin.

The major goal of National Commander, John Markiewicz, over the next two-years, is to increase USSVI membership through community involvement of our Bases and their members. All Bases will be helped to get involved in community activities that will both give the members and those we wish to recruit a reason to want to be a part of the organization. This will also increase the exposure of our Bases so that they become known entities in their local communities.

Very important to us is our Charitable Foundation, a separate corporation. The Foundation members are the USSVI Board of Directors plus others elected by the Board and are headed up by Immediate Past National Commander, currently Al Singleman as president, and Retired VADM Al Konetzni, elected as Executive Director. The Foundation is being revitalized to have it become more active, both in the areas of fund raising and disbursement of funds.

New members are a must for any organization to survive and grow. To attract new members, many of our bases contribute yearly subscriptions for our quarterly magazine, the *American Submariner* to boats and tenders, bases, NROTC units and other places that may reach current or future *dolphin wearers*. Many

members proudly wear baseball caps, embroidered with Dolphins and other information that often stops passersby to ask questions.

USSVI has shifted gears and is moving more purposefully towards the future with a dedication to remembering those submarine sailors that have gone before, recruitment of new members, and service to our country and community.



IN THE SUBMARINE FORCE, UNCONVENTIONAL CAREER PATHS ARE MORE NORMAL

LT Jeff Vandenengel, USN

The following article first appeared in Tom Rick's Foreign Policy Best Defense column, and is reprinted here with permission. The post was in response to a pilot's argument that the Navy is doing a poor job of promoting those who choose to take unconventional career paths.

LT Jeff Vandenengel is the weapons officer on USS ALEXANDRIA (SSN 757). He recently received the L.Y. Spear Award, David Lloyd Award, and Armed Forces Communications and Electronics Association Award for his performance during the Submarine Officer Advanced Course.

In a September post to Tom Rick's *Foreign Policy Best Defense* column, P-3 pilot LT Danny Kuriluk discussed his frustration with the Navy and the way it chooses officers for promotion to lieutenant commander. He is upset with a system that determined him worthy of selection for the prestigious Politico-Military Master's Program at the Harvard Kennedy School of Government, yet not worthy of selection for O-4.

LT Kuriluk identified the Army and Air Force as having "mechanisms to identify, promote, and retain folks who take an unconventional path." He went on to assert, "In the Navy, your actual leadership capabilities are meaningless." However, the submarine community is proof that the Navy is already successfully sending its officers to complete numerous unconventional programs without negatively affecting their chances of promotion, ensuring that their performance at sea determines their future.

The first four years in the Submarine Force, including initial training and the division officer sea tour, have little room for flexibility. However, the ensuing shore duty provides an excellent

time for many junior officers to participate in a wide range of challenging programs and to take *unconventional* career paths, as LT Kuriluk discussed. The system is not perfect, and many officers cannot participate because they are needed to fill demanding conventional billets, oftentimes in shift work or at sea. However, when possible, the submarine community does a good job at working with its members to send them to a wide variety of interesting programs. Detailers and community managers closely monitor proposed programs and timelines to protect officers' careers and ensure that they are ready for their next tour.

When these officers return to sea duty, they help form a highly educated and diverse wardroom. For example, during my division officer tour, the commanding officer, executive officer, and three department heads had a combined six master's degrees between them. Those degrees were all from different prestigious schools, some as far away as Singapore and Cambridge, England. Additionally, more than half of the prospective department heads that completed the Submarine Officer Advanced Course with me already have master's degrees, in subjects ranging from nuclear engineering to catechesis and evangelization. In the submarine community, unconventional career paths are somewhat conventional.

When these officers are up for promotion to O-4, performance at sea is clearly the dominating factor, as it should be. Their various shore duties appear to have minimal if any effect on their selection. While mistakes can be made, the vast majority of the time good ship-drivers and leaders are selected for O-4, regardless of what they did between their division officer and department head tours.

Overall, there is plenty of room for improvement in the officer retention and promotion processes. Despite this, the submarine community's encouragement of various programs (Olmsted Scholar Program, Immediate Graduate Education Program, Legislative Fellowships, MIT/Woods Hole Oceanography Program) is a bright spot.

The submarine community's success in allowing and encouraging unconventional career paths is merely offered as proof that

such a system is possible, not as a suggestion that the aviation community adopt this process. The aviation community has a bigger challenge because it has no clearly defined shore duty, fewer officers leaving after their initial commitment, and a substantially longer initial training process, meaning aviators are considered for O-4 before they start serving as department heads. However, LT Kuriluk's declaration that it is "amazing how bad the Navy is at selecting good leaders," without any accompanying recommendations, does nothing to improve that system.

“YOU FAILED!”

by RDML Tom Kearney, USN, Ret.

So, you got out of bed this morning without falling and breaking your neck. Congratulations. You drove to work without crashing your car, and you got a cup of coffee without burning your hand. Again – congratulations! Things are going pretty well today, huh? And for the most part, they typically do. Which brings me to an important point: The fact that things typically do go well in our lives creates a cognitive bias in our brains that things will continue to go well, which essentially creates a state of inherent optimism in humans. This inherent optimism, when coupled with a ubiquitous “can do attitude” that is often praised as a positive leadership trait, can leave us open to failures that we don’t see coming. The Pre Mortem Process is an intriguing way of identifying potential failure paths by purposefully prompting a team to see the future from a different perspective. By acknowledging our inherently optimistic human nature, this process can help leaders ensure important projects don’t get derailed by unanticipated issues, or have potential complications minimized by a “can do” attitude.

If you are leading an important project or mission you have a responsibility to ensure it is successfully accomplished; in fact your job may depend on it, or more importantly, the safety of those involved. As stated above, inherent optimism leads to a cognitive bias that prevents us from fully evaluating or even recognizing potential failure paths. Being optimistic is not a bad thing, but being optimistic does present a hidden risk that a smart leader must learn to manage beyond the standard Risk Management Tools. Isn’t it true that everyone is often “good with risk” until that risk is realized? And in support of that, I put forth a single word – Failure.

Failure. It’s a harsh word. It’s painful to fail. Being told “You Failed” elicits a human response that generates a gut reaction that physically and emotionally changes the way you look at a



situation. Think *flashing blue lights* in your rearview mirror. Even when you only think you may have failed, your mind reacts as if you did fail and it has a noticeably unpleasant effect. Focusing on failure is counter to the typically optimistic attitude and “Can Do” spirit that is highly desired and expected of leaders. But it is specifically this instinctive reaction to failure that we can leverage to enable success.

So, how do we do that? By conducting a “Pre Mortem.” Throughout business, industry, and the military, we are all familiar with the use of a post mortem, critique, or “Failure Review Board” to identify the root causes of a failure, setback, or problem. The “Pre Mortem” is conducted in a similar fashion, with one significant difference - it is conducted BEFORE any failure occurs.

A few years ago I learned of the “Pre Mortem Process” as published by Dr. Gary Klein in a Harvard Business Review article (HBR 85,9 (2007) p18-19), and through discussions with Professor Ed Hess (University of Virginia Darden School of Business) who has also written extensively on the topic. In this process, an organization works to identify possible failure paths ahead of time, with the intent of identifying necessary risk mitigation steps to preclude the bad event from occurring in the first place. The Pre Mortem provides a way to leverage the sense of failure to identify potential risk areas that have not been fully evaluated or considered. It turns optimism on its head and allows - even forces - dissenting opinions by giving the team *permission* to not be optimistic, as they identify potential risk areas. The objective is to imagine you have failed, then identify the potential causes, and accordingly implement appropriate measures to avoid its actuality.

How to do it: Bring your project team together and provide a dire scenario that is counter to your objective. In a business setting, you could say, “We needed to deliver certain components per our contract and we failed, miserably, and the Company is now several months behind schedule and losing money every day.” Or, in a military setting, “The new missile we are building exploded on the launch pad and killed 10 people,” or “The new

operational flight software caused the plane to crash on its test flight.” Let that sense of failure sink in to the group, and it will. Then, ask, “How could we have gotten here?” Let the team list all possible causes, without trying to solve each one, in a free-form discussion without criticism. Then begin reviewing the list and deciding whether there is some truth to the potential failure path. Rank them in order of importance and discuss what mitigation steps are either already in place or may need to be put into place if you deem the risk high enough. It is guaranteed that you will find potential failure paths you didn’t think of, but should have.

Though this is a fairly simple process, it is important to understand that the Pre Mortem does a couple of things. First, the Pre Mortem removes biases as discussed above and helps us see potential risk issues in a more realistic light as the group purposefully removes themselves from an optimistic perspective. Being optimistic is good leadership, but leaders owe it to the organization to force an alternate viewpoint. Junior personnel who may be hesitant to tell the boss they don’t like the plan, will be more inclined to raise a potential issue in this type of scenario.

Second, it also helps prepare leadership to look for leading indicators of failure. If you haven’t ever considered a specific failure path before, your brain is not ready to receive indicators and early warning signs that things are going wrong. If the brain has worked through some scenarios of doom, then, if the precursors to the failure scenario actually start to occur, they will be noted more easily.

In summary, conducting a “Pre Mortem” is a different and vital step that is demonstrably missing from a thorough planning process. Good planners often ask: “What can go wrong and what are we going to do about it?” The key difference here though is the team’s imagining that a bad event actually happened. That is when our minds perceptively change to be more open to the possibility and potential causes of failure. And that twist creates a paradigm shift that takes us out of our typical bubble of inherent optimism and allows us to mentally see and feel the negative event as if it did occur. What happens then is that people will come up with a new set of issues, problems, solutions, and areas to look at. And it

is precisely those new areas to look at that may keep us from having to attend an actual critique. It can help us avoid the most common comment during a critique or post mortem, which is, "this problem seems obvious now, why wasn't it identified earlier?"

As a Submarine Officer and Flag Officer in the US Navy with 10 years of acquisition experience I routinely interacted with senior executives of many of our largest defense contractors. In many discussions, I regularly brought up the Pre Mortem process and have found that only a few executives have heard of the concept. Every one of them became interested in the topic and many have implemented the principles in their company. In a high stakes business dealing, or military operations setting, it is vital that we adequately consider all outcomes in an unbiased way. By training leaders and organizations to make better informed decisions, they can ultimately prevent hearing – "You Failed!" I think the Pre Mortem Process is a great tool to do just that.

THE USS TORO vs USS PIPER GUANTANAMO TO NEW LONDON RACE

by *VADM Duke Bayne, USN, Ret.*

VADM Duke Bayne received his commission in 1942 and made three war patrols in the Pacific on USS BECUNA (SS 319). He served on six submarines, commanding USS PIPER (SS 409) and USS TRIGGER (SS 564). He served as Commander Submarine Division SIXTY TWO; Aide to Secretary of the Navy; Commander Submarine Flotilla EIGHT; Commander Middle East Force; and Commandant of the National War College. He retired from the Navy in 1977. VADM Bayne died January 27, 2005.

Extract from VADM Marmaduke G. Bayne, USN, Oral History, Naval Historical Foundation, 1998.

In 1947, I was the Executive Officer of the TORO under Captain Raymond W. Alexander, who was an absolute prince. He was the most natural navigator, I think, I have ever known. His instincts regarding position, relative motion and relative speeds were uncanny at times. I was the ship's navigator, and when I realized what an unusual person he was, it was like having a skipper who loved being the engineering officer. Yet, he never put me in the position of second guessing me.

He just instinctively always seemed to know where the submarine was, his mind tracked whatever we were doing. I had to use a chart and plot to see where we were and where we were going. I had to see it on paper, but he seemed to know without that. 1947 was close enough to the end of the war to allow ships considerably more freedom in their operations than subsequently developed. You weren't worried too much about fuel usage, running engines at high speeds; we were still in a war mentality where whatever you needed was available. There were limitless exercise torpedoes. Frankly there was such a supply of torpedoes that once you took the warheads off and made them exercise capable, they were



magnificent for training. So, you fired actual torpedoes in exercises, you did not have to pretend to shoot them. On one fleet exercise, we went to Guantanamo, Cuba after a spell at Key West as a submarine target for the sonar school there. We cruised to Guantanamo and met USS PIPER, which I later commanded. We were to return to New London in company. As PIPER cleared the harbor, she sent a message to us by flashing light from the bridge, "We will furnish you line handlers in New London".

That message developed into a remarkable game on the twelve or thirteen hundred-mile trip up the coast. We had to send noon position reports to New London each day, but were otherwise on our own. We gradually began to send these reports at different times, using different frequencies, so we could keep the other from knowing our speed of advance. In the beginning we made trim dives each day, and conducted some emergency drills and did the usual training things inherent in at sea activity, but these became shorter and shorter as we increased speed until finally when we were about north of Norfolk and out of sight of each other TORO was just frankly racing PIPER to New London. We were scanning frequencies to pick up the other's position report each day. We had blown ballast tanks dry to lighten ship as much as possible, and were running all four engines at full speed. These things would never be allowed today. We sighted Montauk Point, the entry into Long Island Sound near daybreak, and realized there was a radar contact east of us traveling at about our speed, slightly over twenty knots, headed for Montauk also. Obviously, it was PIPER. She rounded Montauk a few hundred yards ahead of us. Captain Alexander elected to cut inside the sea buoy off Montauk, and we roared down Long Island Sound a couple hundred yards ahead of PIPER.

I was in the conning tower, keeping track of our course: trying to see with radar any small fishing boats that might be out in the Sound that early in the morning. We maintained these positions around Race Rock, which establishes the entrance to the Thames River and New London. It was obvious someone would have to reduce speed before entering the River for it is narrow, with traffic, and maintaining twenty knots would hardly be prudent. At

this stage it became a game of chicken. No one was asleep on either submarine, for over the days running up the coast a record of probable PIPER position had been posted, and both crews wanted desperately to win.

This gets back to Captain Alexander's ability as navigator. He knew Long Island Sound so well that he knew he could cut inside the entrance buoy, and run the sound staying close to the various navigational markings. Finally the PIPER bridge signal light flashed, "Please furnish line handlers." The message was repeated on the ship's announcing system, and you could clearly hear the yell inside the ship from the bridge. Both submarines cut speed and went on in the channel safely and normally.

That night on Captain Alexander's front porch a case of Scotch mysteriously appeared. It was from the crew. There was also, the next morning, a meeting with the Division Commander in which both Commanding Officers were chastised for wasting fuel and acting like speed boats. Shortly after that, restrictions on transit speeds were set at a maximum of 15 knots. Obviously this was before the days of nuclear submarines.

TORO became the favored submarine in New London. There were requests for transfer to her. To be a member of TORO's crew was golden. It was a grand and happy tour of duty.



ANECDOTES**MEETING ADMIRAL RICKOVER***Mr. John Tolliver*

A little background. After some high school and college, I joined the Navy to become a Photographers Mate. My recruiter explained to me that the Navy was like college whereby you could *switch majors*, so it made sense when he told me to join the NNP program at an advanced rate, and then switch later (my recruiter obviously had a good sense of humor, and was a good salesman).

I went right to new construction right from prototype, and was part of the initial 12 man complement of the JAX. The JAX was in new construction period almost double the time of most of the other boats because of weld QA issues, so we did have some down time. One day our COB asked if anyone had any desire to attend Navy barber school in Charleston. I had a desire to, but my *Sea Dad* suggested "Hey, its two weeks in Charleston, and you're a nuke, you'll never realistically cut anyone hair ever again", he was pretty much right with one big exception.

So clock goes ahead about 1.5 years, I'm now a MM2(SU) and the JAX was on Alpha trials. I was standing Engine Room Lower Level watch and working on an oil strainer, when a NR Captain, the JAX XO, my division officer, and my chief come to retrieve me. They tell me Rickover wants a haircut. They literally strip me down, wash me, and put a clean uniform on me as we make our way forward. As we are walking the XO states "Tolliver, DO NOT ASK HIM ANY QUESTION, answer any questions he asks with Yes Sir, No Sir, or I don't know Sir, do you understand?" I think I mumbled back Yes.

The JAX Captain R.B. Wilkinson was waiting for me in the wardroom to brief me, and as mentioned he just smiled and said "Petty Officer Tolliver, I know you're feeling nervous, but

you will spend more time alone with the Admiral than anyone else onboard, and I guarantee you'll never forget", he then walked me to his stateroom, knocked and opened the door, motioned me to enter, and closed the door after I did. Leaving me and the good Admiral alone.

The first words out of Admiral Rickover's mouth were;

HGR: "Did your XO tell you not to not ask me any questions?"

JT: "Yes , Sir"

HGR: "Well you ask me whatever the you want, because I outrank him"

We then discussed education (luckily I had read his book on Swiss Schools, I think), the Navy (and his disdain for Electric Boat) but we actually had a good conversation, with him doing most of the talking, but I did continue to ask questions. I was never so scared in my life, so pretty much never even cut any of his hair, so instead I just went through the motions.

About half way through, they made an announcement that they would be doing an Emergency Blow (The JAX's first if I remember correctly), for testing. So I took a step back away from the Admiral, and he bellowed;

HGR: "Why are you stopping your work?"

JT: "They just announced they would be doing an Emergency Blow Admiral, so I figured that would be safer"

HGR: "Oh you think its because I'm old and my hair won't grow back, that's why you stopped, right?"

JT: "No Sir.....I.....I"

HGR: "You keep cutting, because my hair will grow back just fine", then he looked at me and smiled, and as you probably remember he had eyes that made you feel like you were being xrayed.

We continued for a while longer with about another 20 minutes of conversation, then I was thrilled to be done. I still remember thinking to myself during the Emergency Blow that I don't want my mark in history to be the guy that accidentally severed Admiral Rickover's carotid artery, because no one would ever believe that he insisted I go forward during the emergency blow.



I think the JAX was the next to last boat which the Admiral took out on Sea Trials. As you probably remember the quick stop tests were criticized by both EB and Congress as a main driving force on his retirement. It was an amazing period of years though. Also on that voyage, I remember asking my chief to ask this one shipyard worker onboard to stop annoying me by offering too much hands-on help in ERLI, when my chief investigated, he found out that shipyard worker was actually Admiral McKee, so needless to say I accepted the help after that.

**“BEST ADVICE I EVER GOT,
IN MY WHOLE CAREER”**

ADM Kin McKee, USN

Admiral Kinnaird R. McKee graduated from the Naval Academy in 1951, served on eight submarines, commanding USS X-1 and USS DACE (SSN 607). He served as Commander, Submarine Group EIGHT; Superintendent of the US Naval Academy; Commander, Third Fleet; Director Naval Warfare, Office of CNO; and, in 1982, he relieved Admiral Rickover as Director Naval Reactors. He retired from the Navy in 1988. Admiral McKee died December 30, 2013.

Extract from Admiral Kinnaird R. McKee, USN, Oral History, Naval Historical Foundation, 2000.

I had been told I would make three patrols (as XO on SAM HOUSTON following an XO tour on NAUTILUS). I was getting ready to go on the third one when the officer who had been Bill Behrens' relief on SKIPJACK became the detailer. He called me down to Washington and said, "You're going to command after this patrol." I asked for an ice capable SSN that had recently completed a refueling overhaul. I got orders to SEADRAGON before we sailed on patrol. I left feeling pretty good about everything.

However, about ten days from port, on the way home, I received a familygram from Betty Ann. It said, "Your orders (to command) are cancelled. You will relieve Dan Summitt in Naval Reactors." That would delay my command tour for two more years. It was almost a guarantee of being the last guy in my class to go to command. I didn't mind going to the job, but the timing was unfortunate. Jim Watkins (later CNO) had something to do with those orders. He was just leaving the senior line officer slot in the NR staff. I would be number two of three line officers there.



When I returned, I asked the detailer who I would have to see to get the orders changed. He suggested that I talk to Admiral Rickover. I decided to go see him. By this time my old skipper, Bill Behrens, was a Captain on shore duty in Washington. Betty Ann and I went down there, spending the first night with them when we arrived. After supper, Bill got me aside and asked what I was doing in Washington. “What’s on your mind?” – he asked. I told him I was going to talk to Admiral Rickover about getting my orders changed. He thought about that for a moment, then smiled and said, “Why don’t you just shut up and carry out your orders? You’ll be a better commanding officer. You’ll have a better ship; and your operational opportunities will be livelier when you come out of your shore duty tour in Naval Reactors.”

I went back to New London and carried out my orders. That was the best advice I ever got, in my whole career. I would have made a fool of myself otherwise. It would not have helped; it would probably have hurt me. I’ve used his words many time since then. “Why don’t you just shut up and carry out your orders?” That’s good advice for almost any situation.

BOOK REVIEWS**READING SUBMARINE HISTORY**

by Timothy S. Wolters, CAPT USNR, Ph.D.

Dr. Wolters is an associate professor of history at Iowa State University, where he teaches the history of technology and military history, and as a Captain in the U.S. Navy Reserve. He qualified in submarines on USS GROTON (SSN-694) and has had three reserve CO tours, two within the Submarine Force Reserve Component.

In February 1935, Commander Scott Umsted assumed duty as officer-in-charge of the U.S. Navy's Submarine School in New London, Connecticut. A native of Wilkes-Barre, Pennsylvania, Umsted graduated from the Naval Academy in 1915 and served in European waters on two L-class submarines during World War I. After the war, he commanded three different boats (N-2, R-10, and S-17), as well as a flush-deck destroyer.¹ During that era, the Submarine School's curriculum included instruction on diesel engines, electric batteries, radio communications, tactics, and torpedoes, but the veteran submariner wanted to broaden further the mental horizons of his officer students. He therefore decided to require each prospective submariner to read and report on at least six books about submarines. According to one student, Ignatius J. Galantin, the dearth of books on submarine-related subjects made Umsted's assignment a challenge.²

Some eight decades later, there is no shortage of books on submarines. A recent article by Lieutenant Commander Joel Holwitt in *The Submarine Review* (August 2016 Issue, Page 98) attests to this truism. Holwitt, one of a very small number of nuclear submariners to hold a Ph.D. in history, recounts how the crews of his modern, twenty-first century submarines embraced lectures on American submarine history. The popularity of such lectures inspired him to compile a submarine history reading list for submariners. To facilitate reading by all ranks, rates, and



backgrounds, Holwitt divides his list into three categories: basic, intermediate, and advanced.³

As one of the Navy's few other dolphin-wearing historians, I applaud Holwitt's choices, which range from the memoirs of legendary submariners like Dick O'Kane to analytical works such as Anthony Newpower's *Iron Men and Tin Fish*. I was especially delighted to see Holwitt include the recent books of Alfred McLaren, whose *Unknown Waters* and *Silent and Unseen* provide arguably the best available window into the world of Cold War submarining.⁴ Yet, Holwitt limited himself to books available on e-readers. Given the confined spaces of a submarine this choice is perhaps understandable; however, it has the unfortunate consequence of weeding out a number of fascinating books. For those individuals looking to add titles to their personal bookshelves, or possibly to the professional libraries kept by submarine shore commands, the following additions to Holwitt's reading list are suggested.⁵

Basic Level

Mark K. Ragan, *Submarine Warfare in the Civil War* (Da Capo Press, 2002)

Most submariners are familiar with the story of H. L. HUNLEY, the Confederate submarine that sank steam-sloop USS HOUSATONIC with a spar torpedo during the American Civil War. Regrettably for HUNLEY's crew, the vessel then sank in Charleston Harbor with the loss of all hands. Underwater archeologists eventually found and raised HUNLEY, and today she can be toured at a conservation center in North Charleston.⁶

Mark Ragan was one of the divers involved with HUNLEY's excavation and recovery, but most of his book is devoted to other vessels, including a steam-powered submarine developed in Mobile, a three-man submarine built by gauge manufacturers in New Orleans, and famous Union submarine ALLIGATOR. Ragan shows that the Confederacy and the Union combined to design and construct as many as two-dozen underwater boats, some of which experimented with advanced features ranging from air purification systems to periscopes to lockout chambers. In addition to

chronicling the birth of the modern submarine, Ragan's book challenges heroic theories of invention by demonstrating that technological innovations are products of their time as much if not more than the products of genius.

Peter Maas, *The Terrible Hours: The Greatest Submarine Rescue in History* (Perennial Press, 2001)

Holwitt's reading list includes A. J. Hill's book *Under Pressure*, which recounts the incredible actions taken by the officers and crew of submarine S-5 after she careened into the bottom of the Atlantic Ocean in the summer of 1920. Nearly twenty years later the officers and crew of another boat, USS SQUALUS (SS-192), would also find themselves trapped on the bottom of the Atlantic. *The Terrible Hours* offers an engaging account of the Navy's dramatic rescue of these men. The story's most prominent hero is Charles Swede Momsen, who supervised a team of divers that made four tension-filled dives to rescue thirty-three submariners.⁷ If one reason we learn about naval heritage is to "inspire future and current generations of U.S. sailors,"⁸ then *The Terrible Hours* offers a good place to find such inspiration.

Paul R. Schratz, *Submarine Commander: A Story of World War II and Korea* (University Press of Kentucky, 1988)

While naval heritage can inspire, naval history often has a more practical purpose: to enhance the learning/decision cycle of naval personnel.⁹ For leaders especially, one good way to draw lessons from history is to understand better the thought-processes of those who have had to execute policies, manage personnel, and make tough decisions. One book that offers a superb window into the mindset of an able submariner is *Submarine Commander*.

Paul Schratz's memoir covers his experiences in both the Atlantic and the Pacific during World War II, in occupied Japan after the war, and as a submarine skipper under United Nations command during the Korean War. A 1939 graduate of the Naval Academy, Schratz's tours in the Pacific included war patrols on USS SCORPION (SS-278), USS STERLET (SS-392), and USS ATULE (SS-403). Schratz's analysis of the commanding officers



under which he served is insightful, and one of the more entertaining parts of the book is Schratz's recounting of his tour in occupied Japan, where he was responsible for both demilitarizing and collecting intelligence on Japanese submarines. This experience led the Navy to give Schratz his first *command*, which involved sailing the former Japanese submarine I-203 from Sasebo to Pearl Harbor. If there is one element that makes *Submarine Commander* unique within the genre of submariner memoirs, though, it is that Schratz devotes considerable space to his experiences as CO of USS PICKEREL (SS-524) before and during the Korean War. In public memory the U.S. Navy is generally absent from the conflict in Korea, and the one book that thoroughly examines the service's contributions barely mentions submarines.¹⁰ For those interested in what the Submarine Force was doing to aid the war effort in Korea, *Submarine Commander* provides an informative glimpse into these activities.

I. J. Galantin, *Submarine Admiral: From Battlewagons to Ballistic Missiles* (University of Illinois Press, 1995)

Another book that captures the zeitgeist of the mid-twentieth century U.S. Submarine Force is I. J. Galantin's *Submarine Admiral*. Six years senior to Schratz, Galantin attended Sub School in 1936. After graduation, he served four years on USS ARGONAUT (SM-1), the U.S. Navy's first dedicated submarine minelayer. During the war Galantin commanded R-11, which was assigned scouting duties off the Panama Canal Zone, and USS HALIBUT (SS-232), a boat nearly lost at sea in November 1944 when she had to endure what Clay Blair would later describe as "one of the most devastating depth-charge attacks of the war."¹¹ Beginning in 1949, Galantin served three separate sub-desk tours in OPNAV, the latter two in the submarine/antisubmarine warfare division (Op-31), and he eventually relieved William Red Raborn as director of the Special Projects Office. Galantin's assignments at Op-31 and with Special Projects gave him a front-row seat to the internal deliberations and policy decisions that took place during one of the most innovative times in the history of submarining, including the rapid emergence of the submarine as

an antisubmarine warfare platform, the adoption of nuclear power, the creation of a deep submergence program, and the development of the fleet ballistic missile submarine.

Intermediate Level

Gary E. Weir, *Building American Submarines, 1914-1940* (U.S. Government Printing Office, 1991)

Admiral Hyman G. Rickover once said, “Throughout naval history there have been two important groups of men: the ones who fought ships, and the ones who designed and constructed them.”¹² Because stories about the former can make for dramatic reading, stories about the latter are often neglected. To be sure, details about diesel engine castings and prefabrication techniques can be dry, but such does not have to be the case. In *Building American Submarines*, Gary Weir, a former director of the contemporary history branch at the Naval Historical Center,¹³ provides an engaging account of the design and construction of American submarines from the outbreak of World War I to the eve of World War II.

Building American Submarines examines the Navy’s efforts to replace the relatively primitive submersibles of the early twentieth century with the fleet boats that performed so well in World War II. Weir argues that there was a fundamental shift in the relationship between the Navy and its submarine suppliers during these years, with the service taking greater control of the design and construction process. In analyzing these developments, Weir investigates the aims and goals of American naval leaders, emphasizes the influence of German undersea technologies, traces the evolution of the submarine industry in the United States, and shows how naval planners incorporated evolving strategic assumptions into each new class of submarine.

Gary E. Weir, *Forged in War: The Naval-Industrial Complex and American Submarine Construction, 1940-1961* (U.S. Government Printing Office, 1993)

Weir followed *Building American Submarines* with an informative and equally readable sequel, *Forged in War*. According



to Weir, by the middle of World War II an important new player, the scientist, had joined the industrialist and the naval engineer in efforts to build superior submarines. Weir shows how the desire to go faster, submerge deeper, and run quieter generated a new focus on the ocean environment, an arena in which acousticians, hydrodynamicists, and oceanographers all had key contributions to make. *Forged in War* examines the critical innovations in submarine design and construction adopted during the immediate postwar period, including the GUPPY program, nuclear power, the teardrop hull, sound quieting, and the Polaris project. Weir argues that the triple alliance of the submarine industrial base, the Navy Department, and the scientific community conquered numerous complex challenges because leaders in each realm had close personal and working relationships, ties formed during World War II and cemented by early Cold War tensions. Weir's book tells an important but neglected historical story and offers food for thought to today's submariners as the Navy pursues an OHIO replacement program.¹⁴

Montgomery C. Meigs, *Slide Rules and Submarines: American Scientists and Subsurface Warfare in World War II* (National Defense University Press, 1990)

Another book that emphasizes the scientific community's crucial role in tackling the challenges of undersea warfare is Montgomery Meigs's *Slide Rules and Submarines*. Meigs explores the ways in which World War II naval officers worked with scientists to develop new operational capabilities for combating the German U-boat menace, as well as how the Navy used these insights to bolster the deadly work of American submarines in the Pacific. Like historian Michael Gannon, whose book *Operation Drumbeat* came out contemporaneously with *Slide Rules and Submarines*, Meigs is critical of Admiral Ernest J. King, who was slow to recognize the danger posed by Germany's U-boat campaign.¹⁵ There are many heroes in Meigs's story, though, including dedicated physicist John Tate and renowned submariner Charles Lockwood. The most prominent figure in the book is Francis S. Low, who ran the Tenth Fleet from its inception in the

spring of 1943 until early 1945. Meigs's monograph holds lessons for those who coordinate the work of scientists, engineers, and operators striving to gain new capabilities via technological advances.

Advanced Level

Rodney P. Carlisle, *Sovereignty at Sea: U.S. Merchant Ships and American Entry into World War I* (University Press of Florida, 2009)

One of the books Holwitt places in the advanced category of his reading list is his own "*Execute Against Japan*". The title derives from a message sent by CNO Harold Stark less than five hours after the attack on Pearl Harbor, one that authorized American naval forces to conduct unrestricted attacks against Japanese shipping. Holwitt calls attention to the historical irony of this order given the fact that just a generation earlier the United States had gone to war with Imperial Germany over the very issue of unrestricted submarine warfare.¹⁶ To explore fully this irony, however, in conjunction with Holwitt's book one should also read Rodney Carlisle's *Sovereignty at Sea*, the only study to analyze the specific U-boat attacks and merchant ship losses that led President Woodrow Wilson to seek a declaration of war against Germany.

Carlisle's book begins with the sinking of unarmed U.S. merchant ship VIGILANCIA on 16 March 1917 by German submarine U-70, commanded by Otto Wünsche. Without knowledge of VIGILANCIA's cargo and with complete disregard for the crew's safety, U-70 clandestinely fired two torpedoes, the second of which struck a fatal blow. Fifteen merchant mariners were killed, six of whom were American citizens. Wünsche regarded U-70's attack as acceptable under Germany's recently reinstated policy of unrestricted submarine warfare. Wilson and his cabinet did not. In fact, U-70's attack was different from those of other U-boats operating under the new policy, such as the sinking of U.S. merchantman LYMAN M. LAW. In that case, U-35 captain Lothar Von Arnould dispatched an officer to inspect LAW's papers, ascertained that the ship's cargo was contraband,



and made sure the crew was safely aboard lifeboats before sending LAW to the bottom. Carlisle's book not only adds to our understanding of why Wilson and Congress took the nation to war in 1917, it also speaks to contemporary issues surrounding justifications for recent American conflicts and reveals how seemingly obscure events sometimes become the turning points of history.

Francis Duncan, *Rickover: The Struggle for Excellence* (Naval Institute Press, 2001)

No individual dominated the Cold War Submarine Force more than the *father of the nuclear navy*, Hyman Rickover. The first biography of Rickover, an adulatory account penned by Clay Blair in the 1950s, was timed to coincide with the launch of the world's first nuclear submarine, USS NAUTILUS (SSN-571).¹⁷ Three decades later, Norman Polmar and Thomas Allen published a critical biography, one characterized by veteran defense correspondent John Finney as a work verging "on the snide" and possessing "a certain petty strain."¹⁸ Between these rhetorical extremes is *Rickover*, written by former Atomic Energy Commission/Department of Energy historian Francis Duncan.

Duncan's book chronicles the astonishing career of a man who would spend sixty-three years on active duty. A Polish immigrant, Rickover arrived in America at the age of six, graduated in the top quintile of the Naval Academy class of 1922, and volunteered for submarine duty in 1929. He served three years on S-48, two of them as executive officer, but a passion for engineering ultimately led him to request a lateral transfer to the engineering duty officer community. Promoted to captain during World War II, Rickover probably would have remained at that rank had he not been selected to serve as the head of a new section in the Bureau of Ships, the Nuclear Power Branch, after the war. From that bureaucratic perch Rickover spearheaded design and construction of the nuclear navy, implementing rigorous safety protocols, overseeing the selection and training of personnel, and instilling a legacy of integrity and technical excellence that survives to the

present day.¹⁹ Rickover's personality was both unpredictable and complex, but if people and organizations can learn something about where they are going by studying where they have been, then *Rickover* offers valuable insights for members of today's submarine community.

William M. Leary, *Under Ice: Waldo Lyon and the Development of the Arctic Submarine* (Texas A&M University Press, 1999)

While all submariners have heard of Hyman Rickover, only a handful are likely to recognize the name Waldo Lyon. Like Rickover, though, Lyon devoted nearly his entire adult life to the U.S. Navy. Starting in the late 1940s and for a half-century thereafter, Lyon was a key and consistent figure in under-ice submarine development. His legacy thus endures in every submariner who earns his or her Blue Nose and in every sub that ventures into the Arctic Ocean, a part of the globe that continues to hold substantial geopolitical importance.²⁰

A native Californian, Lyon completed his Ph.D. in physics at UCLA just months before Japan's attack on Pearl Harbor. Concerned about what the draft might hold in store, he gratefully accepted an offer to join the U.S. Navy's Radio and Sound Laboratory in San Diego as a civilian employee. After the war, Lyon became head of the Lab's Surface and Subsurface Research Division and helped to arrange the Navy's first coordinated under-ice exercises in 1947. Institutional support for such operations waxed and waned, but throughout the Cold War Lyon served as chief scientist, engineer, and advocate for the arctic submarine. Lyon was heavily involved in the historic polar voyages conducted by NAUTILUS and other submarines in the aftermath of the Soviet launch of Sputnik, and he was instrumental in improving the under-ice capabilities of the STURGEON-class submarine. Ultimately, *Under Ice* illuminates the important contributions of a dedicated civil servant and lays bare the intrinsic challenge of incorporating laboratory research into operations at sea.



Concluding Thoughts

CNO John Richardson recently called upon U.S. Navy personnel to develop “sound and long-term habits for reading and writing,” which, he argues, will “sharpen our thinking, learn the lessons from history, and expand our minds.”²¹ That Richardson – a member of the last Naval Academy class to interview with Rickover for acceptance into the nuclear power program – should make such an argument is fitting, since Rickover himself believed reading was an invaluable way to situate one’s work and to understand the meaning of responsibility.²² Hopefully the books recommended here, along with those previously suggested by Lieutenant Commander Holwitt, will serve both to reveal the rich history and heritage of the U.S. submarine force and to provide a rewarding means for pursuing the CNO’s goals.

ENDNOTES

1. Transcript of Naval Service, n.d., Umsted Folder, Modern Biography Files, U.S. Navy Operational Archives, Naval History and Heritage Command, Washington, D.C.
2. Galantin wryly noted that those who could read German had a somewhat easier time completing Umsted’s assignment. I. J. Galantin, *Submarine Admiral: From Battlegagons to Ballistic Missiles* (Urbana: University of Illinois Press, 1995), 34.
3. Joel Holwitt, “The Submarine History Reading List for Submariners,” *The Submarine Review* 44, no. 2 (August 2016): 98-108. Holwitt’s list contains thirteen books and mentions several others.
4. McClaren’s *Unknown Waters* received an extensive, front-page review in the “Science Times” section of *The New York Times*, unusual for a book published by an academic press. William J. Broad, “Queenfish: A Cold War Tale,” *New York Times*, 18 March 2008, pp. D1, D4. For an analysis of *Silent and Unseen*, see *Naval Historical Foundation Book Reviews*, vol. 59, 14 December 2016, <http://www.navyhistory.org/2016/12/book-review-silent-and-unseen-on-patrol-in-three-cold-war-attack-submarines/> (accessed 20 January 2017).
5. Of the titles discussed here, only *Submarine Warfare in the Civil War* and *Submarine Commander* are available as e-books.
6. “Friends of the Hunley,” <http://www.hunley.org/> (accessed 20 January 2017).
7. Sadly, twenty-six submariners also perished in the SQUALUS disaster.
8. “The Importance of Naval History,” *OPNAV Newsletter*, Winter 2016, 16 December 2016, p. 5.
9. *Ibid.*

10. Edward J. Marolda, ed., *The U.S. Navy in the Korean War* (Annapolis: Naval Institute Press, 2007).
11. Clay Blair, *Silent Victory: The U.S. Submarine War against Japan* (Annapolis: Naval Institute Press, 1975), 771.
12. Admiral H. G. Rickover, "The Role of Engineering in the Navy," speech delivered to the National Society of Former Special Agents of the FBI, 30 August 1974, <http://gmapalumni.org/chapomatic/extras/Rickover.htm> (accessed 20 January 2017).
13. The Naval Historical Center was renamed the Naval History and Heritage Command in December 2008. U.S. Navy Press Release, "Naval Historical Center Renamed, Elevated to Command Status," 5 December 2008, http://www.navy.mil/submit/display.asp?story_id=41201 (accessed 20 January 2017).
14. The OHIO replacement program is now also known as the COLUMBIA-class program after the Navy announced in July 2016 that the lead ship of the class would be named USS COLUMBIA. Because there remains in commission a LOS ANGELES-class fast attack submarine (SSN-771) holding that name, the Congressional Research Service says both "OHIO replacement program" and "SSBN(X) program" are still appropriate nomenclature. U.S. Library of Congress, Congressional Research Service, *Navy Columbia Class (Ohio Replacement) Ballistic Missile Submarine (SSBN[X]) Program: Background and Issues for Congress*, by Ronald O'Rourke, R41129 (25 October 2016).
15. Michael Gannon, *Operation Drumbeat: The Dramatic True Story of Germany's First U-boat Attacks along the American Coast in World War II* (New York: Harper & Row, 1990).
16. Joel Ira Holwitt, "Execute Against Japan": *The U.S. Decision to Conduct Unrestricted Submarine Warfare* (College Station: Texas A&M University Press, 2009), 1-4.
17. Clay Blair, *The Atomic Submarine and Admiral Rickover* (New York: Henry Holt, 1954).
18. John W. Finney, "The Admiral vs. the Navy," *New York Times Book Review*, 31 January 1982, pp. 6, 17.
19. For a take on Rickover's lasting influence as seen through the eyes of a lieutenant in today's submarine force, see Ryan Hilger, "Reflections on Admiral Rickover's Modern Legacy," *The Submarine Review* 42, no. 4 (December 2014): 130-135.
20. Kristian Atland, "Interstate Relations in the Arctic: An Emerging Security Dilemma?" *Comparative Strategy* 33, no. 2 (2014), 145-166. See also James Foggo and Alarik Fritz, "The Fourth Battle of the Atlantic," *United States Naval Institute Proceedings* 142, no. 6 (2016), 18-22.
21. John Richardson and Ashley O'Keefe, "Read. Write. Fight.," *United States Naval Institute Proceedings* 142, no. 6 (2016), 10-11.
22. Francis Duncan, *Rickover and the Nuclear Navy: The Discipline of Technology* (Annapolis: Naval Institute Press, 1990), xxii.



**A TALE OF TWO NAVIES –
GEOPOLITICS, TECHNOLOGY, AND STRATEGY
IN THE UNITED STATES NAVY AND ROYAL NAVY
1960-2015**

Anthony R. Wells

Naval Institute Press, Annapolis, Maryland, 2017.

Reviewed by Rear Admiral John D. Butler, United States Navy (Retired), Commander of the Most Excellent Order of the British Empire.

Wells served in both British Intelligence and the Royal Navy as a British citizen and then later in U. S. Intelligence and the United States Navy as an American citizen. In this book, Wells writes of the US-UK *Special Relationship* forged during World War II and follows the unique and enduring relationship our two navies have enjoyed through the course of the Cold War to current day. The book is not a formal history and strict chronology of the period but rather a presentation and analysis of key events during that period, along with the interactions of the two navies. The themes of each of its chapters are based on criteria that reflect on what drives change at all levels; from the high-level institutional and organizational aspects of political-military decision making down to the effects of significant technical changes that in due course impact policy making and operations.

Wells has written this book as an instrument of naval thinking, not only how it impacts every level of naval activity but also how it relates to strategic decision making and the national defense. He seeks a dialog between the author and the reader so that individually and collectively they may contribute to the debate on actions needed to keep both countries' naval strategies deeply rooted and

focused on well-reasoned fact, intellectual integrity and rigor to support an enduring US-UK global maritime strategy. This insightful look at the *special relationship* is especially relevant given emerging and increasing threats both nations face today.

No matter your level of knowledge about the period addressed in this book, there will be new facts revealed to you throughout. His unique perspective of the challenges faced by both navies and the *special relationship* they have experienced, is highlighted through his presentation of such events as the attack on USS LIBERTY, the Walker spy ring, and the Falklands War. The author's ability to weave together historical events and his own experiences and research, make this book a delightful read.



THE FLEET AT FLOOD TIDE

James D. Hornfischer

Bantam, New York, 2016

Reviewed by RADM W.J. Holland, Jr. USN, Ret.

This is Hornfischer's fourth book devoted to parts of World War II in the Pacific; everyone of them a *page turner*. Of particular note for submariners, this history, focused on the Marianas Campaign, demonstrates the significant roles submarines played in fleet actions and island invasions. Usually those books devoted to submarine operations in World War II focus on individual attacks and sinkings; only peripherally relating them to the on-going campaigns against the Japanese fortified islands. Hornfischer on the other hand relates the mid-Pacific activities of submarines as central to the advance toward the Japanese home islands.

By mid-1944 US submarines routinely reported Japanese fleet movements. Such reports became the basis for Spruance's battle plans for the First Battle of the Philippine Sea. While submarine actions in other histories have generally been portrayed without the context of the on-going fighting activities of other forces, Hornfischer takes pains to point out their immediate and important effect on Saipan's defense. Among his samples was TROUT's ambush of a convoy carrying a combat regiment from Manchuria—only 1720 of the 4000 soldiers embarked made it ashore. PINTADO and SHARK sank three large cargo ships with terrible losses of embarked troops. Hornfischer's analysis, "All the air forces available to Admiral Nimitz could not have done as much in three days against a division of soldiers entrenched ashore as Lockwood's wolfpacks did in three hours against their transports afloat."

Like his previous books, the narrative is salted with personal recollections and impressions of individuals on both sides.

Featuring personalities and decisions as well as crisp commentary that is not always complimentary to his subjects, he brings scenes of battle to life. Using the Marianas campaign as his canvas he paints portraits not just of flag officers but of individual officers of all ranks: sailors, marines and soldiers on both sides with a singular skill. The naval maneuvers are straightforward, well known and easy to follow. Those ashore on Saipan defy easy comprehension because the topography was so difficult, unit integrity muddled, and the Japanese resistance skillful and desperately fanatical. The fighting in the central highlands was platoon based, hand to hand, with little room for maneuver and deception. This was a battle, not of generals and colonels but, according to Hornfischer, of “Second Lieutenants and sergeants pushing their men forward into caves.”

No matter how much history of the Pacific War one has read, Hornfischer’s three books on the battles off Samar, the Guadalcanal Campaign and this one on the Marianas should not be missed. The first, “Last of the Tin Can Sailors” is a classic of heroism and skill in the face of overwhelming odds. “Neptune’s Inferno” is a lesson par excellence in brave fighting at sea against an enemy better prepared, better equipped and, at least in the beginning, better commanded. More are sure to come from his pen and, at least by this reviewer, anxiously awaited.

SUMMARY OF 2017 CORPORATE MEMBER DAYS

On April 18 and 19, representatives from 52 of our 76 corporate members attended this year's exclusive event for Corporate Members in Falls Church, VA. The event is held each year to provide a frank forum for Navy leadership to share their current thinking with our Corporate Members. The participants find that this is always a valuable way for government and industry to exchange information and understand concerns.

The participants heard from VADM Joe Tofalo, Commander, Submarine Forces, and RADM Fritz Roegge, Commander, Submarine Force, U.S. Pacific Fleet. From the Chief of Naval Operation's staff, RADM (Sel) Bill Merz, Director, Undersea Warfare, addressed the group. They also heard from RADM Michael Jabaley, PEO Submarines and VADM Dave Johnson, former PEO Submarines and now Principal Military Deputy to the Assistant Secretary of the Navy for Research, Development and Acquisition. The first day's presentations ended with a briefing from ADM Frank Caldwell, Director, Naval Nuclear Propulsion Program.

On the second day, the group met for breakfast and heard from RADM Dietrich Kuhlmann, III, Director, Programming Division (OPNAV N80). His presentation was followed by thoughts and insights from Dr. Eric Labs of the Congressional Budget Office.

Each of the presenters invited questions at the end of their talks and addressed issues of concern. The Q&A time also allowed some in the audience to provide suggestions.

Highlights of Flag Officer Briefs

- There is no other military that can match the capability of today's U.S. Navy, and we must work hard to keep it that way.
- It is a national calling to be the best because the price of being second-best is unacceptable.

Discussion of the technical challenges we face:

- There is a demand signal for capability and speed in a technically demanding, growing environment.
- Extraordinary engineering and manufacturing skills will be needed.
- NAVSEA is increasing the size of its engineering workforce.

Discussion of the economic environment we face:

- We must build the Navy we need with the budget we have.
- Continuing Resolution funding has an impact on the Submarine Force.

Discussion of the challenges we face around the world:

- The Commander in Chief of the Russian Navy has stated, “The nuclear submarine fleet is the priority in the Navy shipbuilding program.”
- China’s ambitious naval modernization has produce a technologically advanced and flexible force.

Discussion of Industry’s role:

- Supplier quality is important to meet requirements.
- The supplier base will need to grow to meet requirements.
- Industry will need to invest in people and world-class facilities.
- Industry must attract, develop and maintain a cutting edge, technically superior workforce.
- We must find ways to meet the submarine building rates that will be needed to achieve the Navy’s new Force Structure Assessment of 66 attack submarines (an increase from 48).
- Our suppliers must ask themselves if they are doing everything they can to meet the challenge to keep our capabilities the best in the world.



Highlights from Dr. Labs' Remarks

Dr. Labs made clear that his remarks were to be regarded as his own thoughts and not to be construed as an official opinion of the Congressional Budget Office (CBO). In his view, there is generally strong support for a larger navy because it may be more important for U.S. foreign policy to be backed up by the military. Once again there is competition among great nations and most of them have maritime capability.

But the segmented membership of Congress will make it difficult to change the Budget Control Act (sequestration) and using the Continuing Resolution as a budget process is crippling. Dr. Labs stated that the need to fund non-discretionary entitlements (e.g. Medicare and Social Security) will continue to reduce the discretionary funds available for federal agencies, including the Defense Department, assuming there are no tax increases. This is a theme the members of the NSL have heard from several speakers in recent years.

The procurement needed over the next 30 years to build and maintain a 350 or 355 ship navy is significant, and a trained workforce will be required. Dr. Labs announced that a CBO report was to be released the following week. That report, titled "Costs of Building a 355-Ship Navy," is now available at <https://www.cbo.gov/publication/52632>.

NAVAL SUBMARINE LEAGUE RECOGNIZES CORPORATE MEMBER MILESTONES

Each year the Naval Submarine League recognizes companies that have supported the NSL at five-year milestones. This year, eight companies were recognized.

Ten Years Supporting the NSL

- Cunico Corporation and Dynamic Controls, Ltd
- Imes, Inc.
- Oceaneering International, Inc.
- XATOR Corporation

Fifteen Years Supporting the NSL

- Business Resources, Inc.
- Nord-Lock, Inc./Superbolt, Inc.
- Pacific Fleet Submarine Memorial Association, Inc.

Twenty Years Supporting the NSL

- UTC Aerospace Systems

Four companies received 10 - year anniversary recognition:



(L-R) ADM Kirk Donald, USN, Ret., ADM Skip Bowman, USN, Ret. and RADM John Padgett, USN, Ret. ADM Bowman accepting on behalf of Mr. Jack Flowers for Cunico Corporation and Dynamic Controls, Ltd.

Cunico Corporation and Dynamic Controls, Ltd. Mr. Jack Flowers is the CEO of these companies. Cunico, founded in 1951, is a leading manufacturer of Mil-Spec fittings (nuclear and non-



nuclear) and valves for nuclear submarines, nuclear aircraft carriers, and naval surface ships. A related company, Dynamic Controls, Ltd., provides high pressure cartridge valves, reducing stations/manifolds, the gas supply system for ME-GI gas-injection systems, bellows sealed globe valves for the nuclear industry, and the cartridge valve system for *Rocket Launch*, which comprises various stop valves, electro-pneumatic stop valves, regulators, and manifolds for the launching of multi-stage rockets, and the individual gas lines for nitrogen, helium and high pressure air. Cunico Corporation and Dynamic Controls, Ltd. is a 2-Star Corporate Member of the NSL.



(L-R) ADM Kirk Donald, USN, Ret., Mr. James Bentley, RADM John Padgett, USN, Ret.

Imes, Inc. Vice President James Bentley received the award on behalf of Imes. Imes is an international engineering services company which provides lifting inspection and specialist engineering services. They exist to ensure their clients maintain the capability and availability of mission critical assets, such as cranes, fixed and loose lifting equipment and specialized structures. Imes is experienced in managing complex schedules of inspection work in challenging environments, where critical infrastructure maintenance and integrity assurance is vital. Major players across key sectors trust them with managing asset integrity across their complex lifting fleets. Imes, Inc. is a 1-Star Corporate Member of the NSL.



(L-R) ADM Kirk Donald, USN, Ret., Mr. John Kreider, RADM John Padgett, USN, Ret.

Oceaneering International, Inc. John Kreider, Senior Vice President, Advanced Technologies, accepted the award. The Advanced Technologies (ADTECH) group of Oceaneering is recognized as an industry leader in enabling humans to work safely and effectively in harsh environments ranging from the depths of the sea to the outer reaches of space. ADTECH specializes in the support of manned systems and the development and application of practical, cost-effective robotic systems in multiple industries. ADTECH designs, builds and operates unique underwater systems for the U.S. Navy and provides life cycle maintenance service for Submarines and Deep Submergence Systems. Oceaneering International, Ltd. Is a 3-Star Corporate Member of the NSL.



(L-R) ADM Kirk Donald, USN, Ret., Mr. Ted Wrublesky, RADM John Padgett, USN, Ret.

XATOR Corporation Vice President Ted Wrublesky received the award on behalf of XATOR. XATOR delivers innovative solutions to ensure the safety and security of infor-



mation, personnel, and facilities at home and abroad. Their capabilities and services offer a comprehensive solution to prevent and mitigate risk. Their mission is to enable customers to safely, effectively, and efficiently conduct their operations.

Their vision is to be the trusted global partner for extraordinary customers providing integrated security, intelligence and information technology solutions for critical national interests. XATOR Corporation is a 2-Star Corporate Member of the NSL.

Three companies received 15-year anniversary recognition:



(L-R) ADM Kirk Donald, USN, Ret., Mrs. Anna Touhey, RADM John Padgett, USN, Ret.

Business Resources, Inc. Anna Touhey, President, received the award on behalf of Business Resources. Business Resources, Inc., has been in business since 1983 as a consulting firm and has helped many companies grow their business areas, mainly in the defense industry. Business Resources has used competitive analysis and pricing-to-win expertise to obtain these results. Business Resources, Inc. is a 1-Star Corporate Member of the NSL.



(L-R) ADM Kirk Donald, USN, Ret., Mr. Larry Burda, RADM John Padgett, USN, Ret.

Nord-Lock, Inc./Superbolt, Inc. Larry Burda, General Manager, accepted the award. The Nord-Lock Group is a world leader in bolt securing. Their combination of experience and expertise, as well as a wide product range, enables them to solve the toughest bolting challenges. They look forward to being a partner in bolt optimization, utilizing products from small wedge-locking washers to large Superbolt tensioners. Nord-Lock, Inc./Superbolt, Inc. is a 2-Star Corporate member of the NSL.



(L-R) ADM Kirk Donald, USN, Ret., CAPT Chuck Merkel, USN, Ret., RADM John Padgett, USN, Ret.

Pacific Fleet Submarine Memorial Association, Inc. CAPT Chuck Merkel, USN, Ret., Executive Director, received the award for the association. The Pacific Fleet Submarine Memorial Association, is a non-profit group that receives no state or federal funding. The museum includes an extensive look at the fascinating history of submarines from the first daring attempt in 1776 to use a submersible in warfare to the feats of today’s nuclear submarines. The mission of the USS Bowfin Submarine Museum & Park is to restore and preserve the WWII submarine USS Bowfin (SS-287).



The submarine provides an opportunity to for visitors to go below deck aboard this National Historic landmark, the famous World War II submarine, USS Bowfin. Launched on December 7, 1942, she was nicknamed the Pearl Harbor Avenger and sank 44 enemy ships during her nine extraordinary war patrols. The memorial stands in silent tribute to the 52 America submarines and the more than 3,500 submariners lost in World War II. The Pacific Fleet Submarine Memorial Association, Inc, is a 1-Star Corporate Member of the NSL.

One company received 20-year anniversary recognition:



(L-R) ADM Kirk Donald, USN, Mr. Carl Nunziato, RADM John Padgett, USN, Ret.

UTC Aerospace Systems Mr. Carl Nunziato, General Manager, accepted the award for UTC. The firm is one of the world’s largest suppliers of technologically advanced aerospace and defense products. They design, manufacture, and service systems and components. They provide integrated solutions for commercial, regional, business and military aircraft, helicopters and other platforms. They are also a major supplier to international space programs. UTC Aerospace Systems is a 2-Star Corporate Member of the NSL.

The Naval Submarine League is grateful for the continued support of all its Corporate Members and was pleased to have had the opportunity to recognize these eight companies in front of their peers at the Corporate Member Days event.

2017 NAVAL SUBMARINE LEAGUE CORPORATE MEMBERS

5 STAR LEVEL

Bechtel Nuclear, Security & Environmental (BNI)	Lockheed Martin Corporation
BWX Technologies, Inc.	Newport News Shipbuilding a Division of Huntington Ingalls Industries
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4 STAR LEVEL

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3 STAR LEVEL

Adaptive Methods, Inc.
 AECOM Management Services Group
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3 STAR LEVEL(continued)

Curtiss-Wright Corporation
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 JRC Integrated Systems, Inc.
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2 STAR LEVEL

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 American Systems Corporation
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 General Atomics
 Hunt Valve Company, Inc.
 In-Depth Engineering Corporation
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 Liquid Robotics, Inc.

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 Nord-Lock/Superbolt, Inc.
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1 STAR LEVEL

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THE SUBMARINE REVIEW is a quarterly publication of the Naval Submarine League. It is a forum for discussion of submarine matters. Not only are the ideas of its members to be reflected in the **REVIEW**, but those of others as well, who are interested in submarines and submarining.

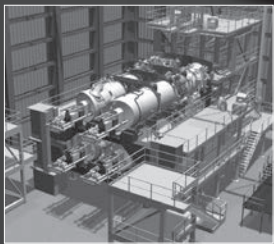
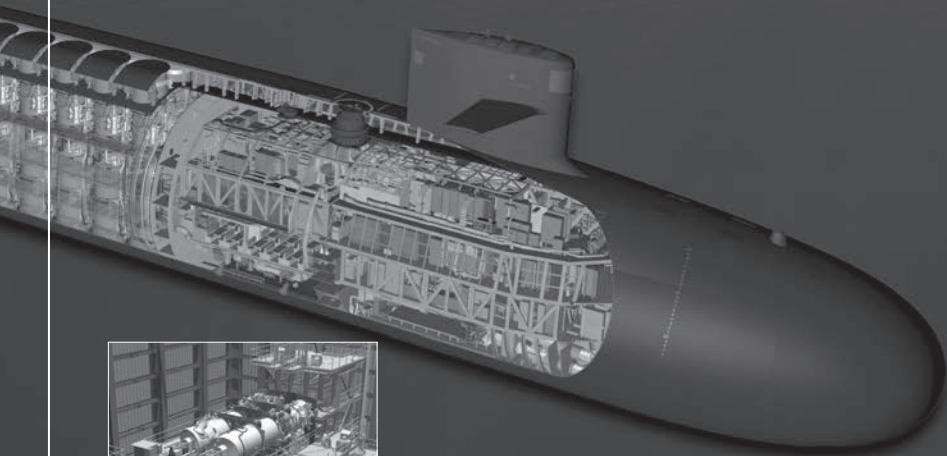
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