American Submariners Inc.
4370 Twain Ave.
San Diego, CA 92120-3404

Non-Profit Org.
U.S. Postage Paid
Permit No. 445
Chula Vista, CA

RETURN SERVICE REQUESTED

The Silent Sentinel

June 2011

Our Creed and Purpose

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.

China's Military Modernization

International Business Times, May 13, 2011

The People's Liberation Army Chief of General Staff Chen Bingde arrives in Washington D.C. on Sunday for a week-long trip to the United States, the highest level visit there by a Chinese uniformed military commander since 2009.

China's ambitious military modernization program and growing defense spending has caused alarm around the region and in Washington.

Beijing in March said it would boost defense spending by 12.7 percent in 2011, for a total of 601.1 billion yuan ($92.5 billion) marking a return to double-digit growth.

China says it needs to upgrade its outmoded forces and that its plans are not a threat to any country, noting its defense budget is far lower than the United States.

Here are some facts about China's defense capabilities, military modernization and some of the weapons systems that have attracted attention:

AIR FORCE:

- In January, China confirmed it had held its first test flight of the J-20 stealth fighter jet, a show of muscle during a visit by U.S. Defense Secretary Robert Gates aimed at defusing military tensions between the two powers.

- Some analysts have said the development of the J-20 is a strong sign that China is making faster-than-expected progress in developing a rival to Lockheed Martin's F-22 Raptor, the world's only operational stealth fighter designed to evade detection by enemy radar.

- However, deployment is likely to be years away and Gates said ahead of his visit to China that he thought there was some question as to "just how stealthy" it really was.

- Along with the development of its aeronautics industry, China is developing a formidable design capacity. Its most advanced aircraft in service, and for the United States potentially the most threatening, are Russian Su-30 and Su-27 fighters.

- Modernization has also included developing in-flight refueling capacity to give its fighters a greater reach, and early warning aircraft.

NAVY:

- President Hu Jintao has made the navy's modernization a priority. It is upgrading its destroyers and frigates to sail further and strike harder.

- China could launch its first aircraft carrier this year, according to Chinese military and political sources, a year earlier than U.S. military analysts had expected, underscoring its growing maritime power and assertiveness.

- The cost of building a medium-sized conventionally powered, 60,000-tonne carrier similar to the Russian Kuznetsov class is likely to be more than $2 billion. China is likely to acquire at least two.

- China is building new "Jin-class" ballistic missile submarines, capable of launching nuclear warheads while at sea. It has built a naval base on Hainan, the island-province in the south, that can serve submarines.

MISSILES:

- U.S. officials have taken note of recent disclosures of advances in China's capabilities, including in its anti-ship ballistic missile program, which could challenge U.S. aircraft carriers in the Pacific.

- The successful missile "kill" of an old satellite in early 2007 represented a new level of ability for the Chinese military, and in January last year China successfully tested emerging technology aimed at destroying missiles in mid-air.

- China has an estimated 1,400 missiles aimed at Taiwan, according to the Taipei government. China has vowed to bring the democratically ruled island under mainland rule, by force if necessary.

- China's arsenal includes between 100 and 400 nuclear weapons, controlled by the Second Artillery Corps. China has pledged never to be the first to use nuclear weapons. Its deterrent force includes intercontinental ballistic missiles, and land- and submarine-based missiles.

ARMY:

- China is trying to transform the 2.3 million-strong People's Liberation Army into a smaller, sleeker modern force capable of short, high-intensity conflicts against high-tech adversaries.

U.S. Submarine Veterans
San Diego Base

Base Commander
Bob Bissonnette
1525 Walbollen Street
Spring Valley, CA 91977
(H) 619-644-8993
(CELL) 619-251-7095
RBisson250@aol.com

Membership -- Change of Address
Ron Gorence
2563 Roseview Place
San Diego, CA 92105
Home--(619) 264-6995. Cell: (619) 264-3327
mgorence@yahoo.com

Treasurer
David Ball
3804 Wildwood Road
San Diego, CA 92107-3750
619-225-0304
davidball@cox.net

Senior Vice Commander
Bill Earl
2251 Vancouver Ave
San Diego, CA 92104-5350
619-2804053
dinkysan@yahoo.com

Newsletter Editor
Mike HYMAN
3639 Midway Drive, B-320
San Diego, CA 92110-5254
(619) 980-0846
stamps@fortunesofwar.com

Assistant Editor / Photographer
Jack Kane
619-602-1801
jkane32@cox.net

Junior Vice Commander
Jim Bilka
563 Broadway, Apt 62
El Cajon, CA
92021
619-277-5758
sashanman@yahoo.com

Base Storekeeper
Phil Richeson
Phillip92071@aol.com
619-922-3230

Chief of the Boat
Fred Fomby
858-735-0026

Secretary
Manny Burciaga
8406 Alado Place
El Cajon, CA 92021-2003
619-921-5877
MannyBurciaga@pointloma.edu

Chaplain
CJ Glassford
4905 Coconino Way
San Diego, CA 92117-2619
858-204-8323
"Cjtmatlarge@san.rr.com

Assistant Chaplain
Tom Warner
thomasnsherry@cox.net
619-884-8471

The Silent Sentinel via Email

To all of my Shipmates and families who currently receive our Great newsletter via the mail who would like it sent via email or continue to receive it via mail, please fill out the form and mail it to the base or myself. We are trying to cut the cost of the newsletter down from $3700 to about $1900 a year. By receiving the Silent Sentinel via email will cut down the printing and mailing cost. The other plus to receiving it via email is you can save it on your computer and not have the paper lying around the house.

A subscription to the Silent Sentinel newsletter will be available to surviving family members via internet email, at no charge, upon notification of the Membership Chairman. If a printed hard-copy is preferred, via US Post Office delivery, an annual donation of $5.00 will be requested to cover costs.

NAME: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

EMAIL: _____

TELEPHONE: _____

Would like the SILENT SENTINEL emailed: YES_____ NO_____

Robert Bissonnette
1525 Walbollen St.
Spring Valley, CA 91977-3748

USSVI Base Commander
c/o VFW Post 3787
4370 Twain Ave.
San Diego, CA 92120-3404

*DUE TO LOGISTICS CONSTRAINTS, ALL INPUTS FOR THE SILENT SENTINEL MUST BE IN MY HAND NO LATER THAN **ONE WEEK** AFTER THE MONTHLY MEETING. IF I DO NOT RECEIVE IT BY THIS TIME, THE ITEM WILL NOT GET IN. NO EXCEPTIONS! MIKE*

June Meeting

Our monthly meetings are held on the second Tuesday of the month at VFW Post 3787, 4370 Twain Ave., San Diego. Our next meeting will be on 14 June, 2011. The post is located one-half block West of Mission Gorge Road, just north of I-8. The meeting begins at 7 p.m. The E-Board meets one hour earlier at 6 p.m.

Check us out on the World Wide Web
www.ussvisandiego.org

BINNACLE LIST

Bob Medina (Completed last Chemo treatment and feeling better)

Submarine Losses in May

Submitted by C J Glassford

SQUALUS (SS 192) - 59 Men on Board :
Foundered, on 23 May 1939, off the Coast of Portsmouth, New Hampshire, Later Salvaged, Raised, Repaired, and Recommissioned, USS SAILFISH (SS 192)
* Crew Rescued by First Successful use of Diving Bell
" 26 MEN LOST - 33 SURVIVORS "

RUNNER (SS 275) - 78 Men on Board :
Sunk, on 28 May 1943, by Causes Unknown, Possibly a Japanese Mine, or Combined Air and Surface Attacks, off Northeastern Honshu, Japan : " ALL HANDS LOST "

LAGARTO (SS 371) - 85 Men on Board :
Sunk, on 3 May 1945, by Japanese Minelayer, In the Gulf of Siam :
" ALL HANDS LOST "

STICKLEBACK (SS 415) - 78 Men on Board :
Sunk, on 29 May 1958, after Collision with Destroyer Escort Vessel, USS SILVERSTEIN (DE 534) :
" NO LOSS OF LIFE "

SCORPION (SSN 589) - 99 Men on Board :
Sank, on 27 May 1968, Most Probable Cause of loss was Inadvertent Activation of Torpedo Battery, Resulting in a Possible Hot Run and Torpedo Detonation, Off the Coast of the Azores : "
"ALL HANDS LOST "

GUITARRO { (SSN 665) - Duty Section on Board :
Sank, on 15 May 1969, Alongside Pier in Navy Shipyard, Vallejo, California, Salvaged and returned to Duty :
" NO LOSS OF LIFE "

BARBELL (SS 580) - 78 Men on Board :
Heavy Seas, on 1 May 1989, Washes Three Sailors from the Deck of the Submarine, while Operating off Kyushu, Japan :
" 2 MEN LOST - 1 MAN RESCUED "

Commanders Corner
June 2011

Hello all! It will soon be Summer and lots of fun for everyone. Our Joint SUB VETs Picnic is just around the corner with lots of food, games, tours, and good time out in the sun. The date I'm requesting is the 17th of July. The back-up date is the 24th. I haven't heard anything back from MWR or the PAO for tours. I will have a sign-up sheet like last year with 25 on the morning and 25 on the afternoon tour. Hope to see you all out there!

We just had a busy weekend with the 111th Submarine Birthday Ball and Tolling of the Boats, Our breakfast, and Memorial Day Services at Sub Base and Liberty Station at the 52 Boat Memorial. Mother nature was on our side with all the events because there was a lot of our shipmates and their families at them. I want to thank everyone who helped out with the breakfast cause we served over 80 meals. Thanks to everyone who participated in setting up or taking down the flags at the 52 Boat Memorial on Monday. We need to do out share in maintaining these Special monuments that tell the story of our Heroes who have gave their lives for us and our country! If you haven't been down there to see them, you should go and make it a day trip to the park and have a picnic. The city has done a good thing with this park.

By the time this news letter comes out, we will have completed the Le Mesa Flag Day Parade, but we still have the Julian 4th of July Parade. Please come join us in Julian for this great parade and BBQ at the American Legion after the parade. Don't forget those wonderful Apple pies from Julian. You know as well as I, you just can't buy just 1 pie. I come home with 3 or 4 and sometimes 5 pies. Every year we have been there, it's been a great day. Just plan on it being hot there.

Hopefully in the next news letter, I will get Mike the pictures from all the events from this Memorial Day weekend. To all my Shipmates and their families, please be safe and have a great summer!!

Sincerely,
Bob Bissonnette
Base Commander

Submarine Veterans Inc., San Diego Base Minutes for 10 May 2011.

1902 – Meeting called to order by Base Commander Bob Bissonnette.
Conducted opening Exercises:

Reading of our Creed.
Pledge of Allegiance by Fred Fomby.
Chaplin led members in prayer.
Conducted Tolling of the Boats for the month of May.

USS SQUALUS (SS192) 23 MAY 1939 26 MEN LOST
USS LAGARTO (SS371) 3 MAY 1945 ALL HAND LOST
USS STICKLEBACK (SS415) 30 MAY 1958 NO LOSS
USS SCORPION (SSN589) 22 MAY 1968 ALL HANDS LOST

A moment of Silent Prayer observed for our shipmates.

E-Board members, VIP's and guests honored.
Secretary reported 43 members and guests have signed the Sailing list.
Treasurer's report will be held next month since treasurer is out of town.
Chaplin's report: Richard Dick and Don Philpot are on the Binnacle list.
Parade Committee (Jack Kane):

La Mesa Day Parade, June 4 10:00. We will meet up between 9-10.
Julian Parade, July 4.

Membership Committee (Ron Gorence): Our membership stands at 330.

Some interesting facts about our membership:
Our oldest members are 92, 93, and 96.
Our youngest members are 44, 47, and 48.
Members Qualified in Submarines before or during WWII – 37.
Members Qualified in Submarines after 1971 – 39.
Largest number of members Qualified in 1956 and 1960.

Scholarship Committee (Paul Hitchcock) we have received two new applications and will extend the application dead line to June 15, 2011. We need two volunteers to help review the applications and select a candidate for the Scholarship funds. Let me know if you are interested in helping.
Storekeeper (Philip Richerson) we have a new catalog and more hats and other items in the back for sale.
Breakfast Committee (Fred Fomby): Our next breakfast will be 29 May 2011 at 800-1200. It's a great breakfast for only 6.00 dollars. Come on down and bring your friends and family. We do need help to serve and take orders.
1935 – Base Commander called a 10 Minute break….
1935- Base Commander called meeting back to order.
Jim Rogers presented his display of international Dolphins from his personnel collection.
Guest speaker, Len Martini author of the new book ICE-X '86 Freezing the Cold War discussed his new book. The book describes the events of three boats who were tasked by President Reagan to investigate the possibilities of launching through the polar ice cap. These events, according to the author, were instrumental in bringing the Cold War to its conclusion.
Books can be purchased at Amazon.com for $12.99 or on Kindle for $9.00.
Memorial Day Weekend:
Old Timer Luncheon will be held Friday, May 27th at the Harbor Inn Naval Base Point Loma. The program will start at 1030 with Tolling of the Boats Ceremony,
1100 a no-host social and lunch at 1200. Please RSVP by Wednesday, May 18th.
Additional information is located in the back.

Sailing List Not Given to Secretary

An Important Issue Facing Disabled Veterans This Memorial Day

Personal Opinion by Michael Hyman, Editor

Before I even begin this short epistle concerning a major obstacle facing many of today's disabled veterans, one important fact has to be stated—specifically, that the founding fathers under the leadership of George Washington and the First Congress of the United States established a federal pension for disabled Revolutionary War Veterans; additionally. in 1819, Congress extended these benefits to any veteran experiencing financial hardship. Now one can say what he or she will concerning entitlement programs; but what one cannot promote is the idea that the patriachs of the American nation were opposed to programs such as these when it applied to veterans. History clearly shows that this is not the case.

Though it is a matter of record that veteran pensions were established immediately following the Revolutionay War, a history of broken promises between the government and veterans can be traced back to the period immediately following the Civil War. Now, as then, misfiled records, poorly trained staff, and polices which at best can be described as obscurantist, make up a claim process which is in every respect Orwellian. For a disabled veteran attempting to receive a pension from the Veterans Administration (VA), the burden of proof is substantial—greater than anything equivalent in the private sector.

A worthwhile exercise is to examine the way in which the VA processed veteran disability claims for those exposed to Agent Orange (Vietnam veterans) and Asbestos (submarine veterans). One year followed the next, with denial following after denial. And though no one will officially admit it, it is clear that the VA was waiting for as many as possible of these claimants to die.

Organizations such as Veterans of Foreign Wars and Disabled American Veterans, to name two, will help a disabled veteran file an initial disability claim with the VA—and at no cost to the veteran. However, more times than not, the first claim is denied, forcing the veteran to file a petition for reconsideration or to request a court hearing. If the veteran chooses to seek private legal council, the choices are extremely limited—for example, in San Diego, California (a geographical locale with a more than substantial number of veterans), only one attorney in private practice is authorized by the VA to represent disabled veteran claimants.

Clearly, it is hard enough for a physically-only disabled veteran to go through the claim process. For many with psychological disorders, the task may be impossible. The delays, clarifications, requests for additional proof, denials, resubmittals, and hearings can make the most clear minded individual depressed and/or anxious. For the Post Traumatic Stress Disorder (PTSD) veteran—or for the one already suffering from depression and/or anxiety as a side effect of a physical disability—the added stress can easily make the person suicidal.

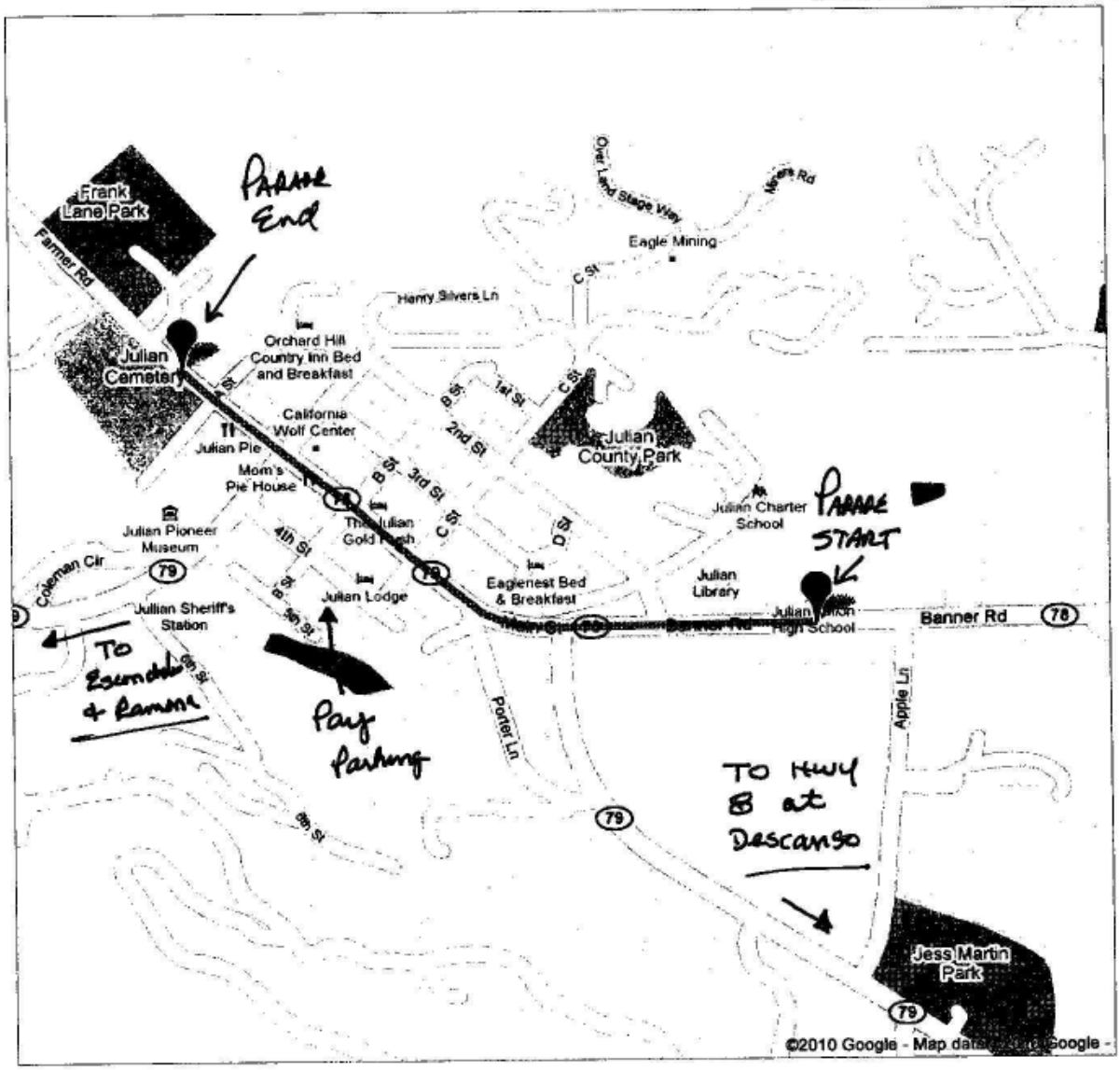
The Veterans Adminstration policy makers seem more than fine with a scenario such as this. And one can rest assured that they have absolutely no plan to change the system until forced by legislation to do so.

Too many men and women—heros who have risked everything to preserve our way of life—are becoming today's forgotten. We as a nation cheered them when they left and praised them on their return from harm's way. But with few exceptions, all it amounted to was lip service. Today, a growing number of veterans (old and new) are facing financial and medical problems directly related to their time on active duty. Concurrently, an increasing number of corporations are reluctant to hire veterans because of fear of latent physical and emotional issues (and the increased financial burden that this would place on their company health plan).

The scenario is a national shame—and I place most of the blame for it on the Veteran's Administration. Unless their policy concerning disability pensons are changed—and quickly—more and more veterans will fade away before their time!

Banner Rd to Farmer Rd - Google Maps

Google maps **Directions to Farmer Rd**
0.6 mi – [redacted]



Float will be in place at Julian H.S. at 1000 – 4 July
Muster at 1100. 4 July at Julian HS.
PARADE STARTS at NOON. —

L Joseph Martini Author ICE X 86

USS Dolphin Shield Presentation

Sunken Vessel Confirmed To Be Navy Sub
Keysnet.com, May 25, 2011

An exploration team led by Tim Taylor aboard the expedition vessel RV Tiburon has located and documented the wreck of the World War II submarine USS R-12, which was lost on June 12,1943, in 600 feet of water about 10 miles off Key West.

It's embalmed with the bodies of 42 sailors.

The U.S. Navy always had its sights on the location and was convinced it knew where it was, and the Tiburon crew confirmed those suspicions. When exactly they found the sub, they didn't say. But the announcement was put out Tuesday.

The R-12 began its career as a World War I sub that was re-commissioned for service in World War II. At the time of the sinking, the crew was engaged in wartime patrol operations near Key West. Only two officers and three enlisted men survived the disaster.
In making the discovery, the Tiburon team deployed an underwater robot that collected imagery of the sub.

Navy May Need To Extend Lives Of Attack Subs
By Philip Ewing, dodbozz.com, June 1, 2011

A projected shortfall in the number of attack submarines may force the Navy to examine whether it can extend the lives of some subs and keep them in the fleet beyond their scheduled retirements, a top Navy admiral told Congress on Wednesday. Vice Adm. John Blake, the service's top requirements officer, acknowledged that that the Navy's sub fleet will grow smaller than its own acceptable minimum, which could force it to look for ways to keep boats serving longer.

But that may be difficult, cautioned a top naval analyst. Shipbuilding expert Ron O'Rourke of the Congressional Research Service, appearing after Blake before a panel of the House Armed Services Committee, warned lawmakers that it may be hard to extend the service of the Navy's fast-attack subs because of limitations on the lives of their pressure hulls. The Navy keeps its nuclear submarines in excellent condition, but the ships were built to meet exact tolerances and specifications, and it may be more expensive than it's worth — or even impossible — to keep submarines sailing for much longer than their planned lives.

Blake told lawmakers the Navy's projections showed its submarine force dipping to as low as 39 boats — from 55 — and that that could warrant "looking at the inventory and seeing what the best of breed is," and the possibilities of service life extensions. If that's not feasible, commanders also could look into scheduling longer deployments for the Navy's existing submarines, so they'd spend more time at sea and as such be available for more missions.

Blake also said the Navy was considering trying to add another attack sub to its long-term plan for fiscal 2018, a decision he said would be made next year. The submarine shortfall, which has been a reality for some time as part of the Navy's long-term planning, is a microcosm of its larger shipbuilding situation: The service wants to grow its fleet to at least 313 ships overall, but congressional analysts say it would need billions more dollars than it's likely to get in order to buy enough ships. Meanwhile, the existing fleet continues to operate at a high tempo: According to the Navy's daily operational update, 26 submarines were underway away from their homeports on Wednesday and 21 of them were on deployment — about a combined 86 percent of the fleet, according to the service.

Investing in the Undersea Future
By Rear Adm. Michael Connor, Proceedings, June 2011

In a world where defense budgets are shrinking but the U.S. submarine force remains vital to security, viability tomorrow requires stringent planning today.

A lethal, survivable undersea force is essential to the current and future national security of the United States and its allies. The challenge we face is how best to address essential undersea warfighting issues of a very complex world in the face of extremely tight fiscal realities. To do that we need a coherent plan—a long-term investment plan that addresses the full span of undersea capability—platforms, payloads, payload volume, and people—and makes integrated decisions about them in a way that helps us thin out options, focus resources and time, and still end up with the capabilities required by the future joint force. This plan allows us to make future decisions in a coordinated way so that gaps are not created and overlaps and hedging are reduced to a minimum to maximize capability in a time when we have resource constraints.

Characterizing the Future

Setting the stage for the undersea force of tomorrow requires an assessment of challenges beyond today's horizon and the tools required to meet them. While the future is uncertain, some trends are very likely and useful for planning.

First, the relative importance of naval forces likely will increase as the global economy depends even more on access to the global maritime commons and as access to forward-basing ashore becomes more challenging.

Second, it is fair to assume that the high end of warfare will be defined by state entities, but small conflicts will frequently arise on short notice from an ever-changing array of non-state adversaries.

Third, national-security requirements will be increasingly cost-sensitive. Cost will be a requirement in itself and will affect the size and mix of our future maritime forces to an even greater degree.

Finally, anti-access/area-denial (A2AD) systems will continue to proliferate and may at times impede joint-force freedom of action. Submarines are less vulnerable to A2AD than other forces and will, therefore, continue to play a key role in establishing access for other forces. In low-intensity conflict, this capability minimizes friendly losses. In major conflict, it will determine whether the joint force succeeds or fails.

With these considerations in mind, the submarine force developed an integrated strategic plan that forecasts future roles and missions best provided by undersea forces and the platforms, payload volume, payloads, and people required to meet our responsibilities to the joint force. This strategy is designed to guide long-term planning and investment decisions. The planning horizons vary.

It takes more than a decade to design and build a new class of ship. It takes five years to implement a change in force structure by adjusting procurement rates. Completely new weapon payloads take more than five years to put in place, while critical adjustments to existing weapons can be implemented in months, provided that the architecture of the weapon is designed with rapid-change potential in

mind. People are our most versatile resource. While it takes years to prepare an officer for command, a talented crew can prepare for and execute a radically new mission in the course of a single deployment cycle.

Current Trends

The trajectory of undersea force structure over the next 20 years is already well defined because ships are large investments with long service lives. The trajectory is downward. The recent implementation of two-per-year construction of Virginia-class attack submarines will slow, but not arrest, the force-structure decline that occurs as submarines constructed in the 1980s and 1990s reach end of service life. Therefore, the strategy starts with the proper prioritization of the force structure. There are three well-defined challenges that the integrated undersea strategy must address.

Nuclear-Powered Ballistic-Missile Submarines (SSBNs): Action is needed to preserve SSBN-force strategic deterrence as the centerpiece of the nation's nuclear strategy. The Navy operates submarines carrying nuclear-tipped ballistic missiles in support of U.S. Strategic Command. The SSBN fleet forms the largest and most survivable leg of the strategic triad. The need for the United States to retain a survivable nuclear deterrent (SSBNs) will continue as long as other nations, or non-state actors, retain nuclear forces. The United States and Russia have been able to cooperate in reducing nuclear weapons from Cold War levels, but other nations have entered the nuclear arena. Therefore, we must plan for the continuing requirement for an SSBN force and the responsibility to operate it at the highest levels of safety and security.

The retirement date of Ohio-class SSBNs is set by the expiration of submarine hull life after 42 years of service. This fixed retirement schedule effectively determines the procurement schedule for the replacement SSBN. Having set the major requirements, we are conducting technology development now for a class of ships that will start construction in 2019, be delivered in 2026, and go on patrol in 2029. The cost of this major investment in national strategic deterrence will have implications for the submarine force and the Navy as a whole.

Nuclear-Powered Attack Submarines (SSNs): Action is needed to compensate for an inevitable SSN-force shortfall. Per the current Navy shipbuilding plan, the attack-submarine force will shrink by 30 percent to a low of 39 hulls in 2030. This is the program of record—it is the starting point as we enter into consideration of defense-budget cuts.

From a warfighting and deterrence standpoint, this drop in SSN-force size and forward presence carries important consequences for day-to-day operations. It will reduce intelligence collection and lengthen response times for contingencies and war-plan surges. When combined with the impact of all four nuclear-powered guided-missile submarines retiring in the 2020s, tactical submarine forward presence will drop by some 43 percent between today and 2030. When considered in light of (1) the increased future reliance on naval forces, (2) the increased dependence on undersea forces to gain access, and (3) the emergence of regional challengers with naval capabilities, it is clear that if no action is taken the Navy will lose its ability to have SSNs operating in many places where they are currently the only credible U.S. military force.

Nuclear-Powered Guided-Missile Submarines (SSGNs): Action is needed to sustain undersea payload volume as SSGNs retire. We have four dual-crewed SSGNs with a forward-based crew change-out CONOPS that allows us to get on average about 2.5 submarines of forward presence from these four ships. Each ship carries in excess of 100 Tomahawk missiles and is capable of carrying up to 154. In addition, these platforms have the capacity to support Special Operations teams with covert insertion-and-extraction capability that is unique. All four of these ships are going to decommission by 2028.

As a result of this SSGN retirement and, to a lesser degree due to the reduction in the SSN-force size, our Navy's undersea strike capacity will decrease by 60 percent by 2030. This reduced payload volume will impact not only strike but also large-diameter payload volume needed for deploying and retrieving large unmanned undersea vehicles, future distributed systems, and special-operations forces (SOF) support. The undersea investment strategy addresses this undersea payload gap in order to ensure that we can continue to fulfill our responsibility as the force that opens the door for access by other joint and maritime forces.

SSGN retirement affects peacetime forward presence, wartime strike volume, and the ability to execute a number of SOF missions. To replace the 2.5-submarine forward presence provided by our SSGNs would require adding 13 SSNs to our construction plan over the next ten years. That is unrealistic. To replace the 600-plus Tomahawk strike capacity of these four platforms would require adding 50 SSNs to our force structure. That's also not viable. And from an SOF standpoint, no number of SSNs can re-create the value of consolidated command-and-control of SOF teams consisting of scores of SEALs.

An Integrated Strategy

These separate problem areas are highly interconnected and require an integrated solution. This solution must fit within the fiscal and industrial constraints facing the Navy and the country. The investment plan outlined here represents the culmination of a focused effort over the past year to develop a blueprint to guide key decisions affecting future undersea warfighting capability. The goal has been to develop an integrated approach that does not solve problems piecemeal but instead solves them in a coordinated and complementary way that is both effective and cost-efficient.

The "Integrated Undersea Strategy" has six main elements.

1. Field the Ohio-replacement SSBN without disruption or delay. The Ohio replacement is our highest priority, and all other facets of the integrated undersea future-investment strategy are subordinate to it. The existence of a reliable and survivable nuclear deterrent is critical to deterring conflict between major powers. The current procurement plan is executable, and we want to make sure that the Ohio-replacement SSBNs enter service on time, with the right performance, and on budget. The size of the fleet and the missile capacity are smaller than the current fleet and consistent with the "New START" treaty between the United States and Russia. Twelve replacement SSBNs will fulfill the same responsibilities that 14 SSBNs have serviced these past ten years.

Cost is a critical issue. Therefore, the next SSBN will be delivered with the correct capabilities, and nothing more. Further, the existing, proven technologies in the D5 strategic weapons system, Virginia-class tactical systems, and other Seawolf- and Virginia-class components will be leveraged to achieve aggressive cost goals.

That said, it must be recognized that as the country reduces the number of nuclear warheads, thereby increasing the premium on safeguarding this highly valued inventory, the Ohio-replacement SSBN will be called on to carry the vast majority of the national strategic-deterrent arsenal. It will serve as the dominant deterrent against major war for the bulk of this century, at a fraction of the cost of the security value it returns.

2. Take affordable steps to arrest the decline in SSN force structure. There is almost no practical plan that would add SSNs to the force in sufficient numbers and early enough to forestall the force falling below the minimum requirement of 48 SSNs established by the

Chief of Naval Operations. However, adding two SSNs to procurement plans over the next decade will result in a stable two-SSN per-year procurement schedule through 2023, which will provide attendant efficiencies in economic-order quantities and in shipyard manning. If additional ships are added as a tenth ship to planned "block buys," unit prices for the block purchases would be reduced.

If we move quickly, we can deliver these ships in time to minimize the depth of the force-structure trough in the critical period between 2020 and 2030. In terms of "SSN years," adding two ships, one in 2018 and one in 2023, eliminates almost half of the projected SSN shortfall.

3. Add a Virginia payload module (VPM) to 20 already planned Virginia-class SSNs. Stretching 20 of the Virginia-class SSNs already in the Navy shipbuilding plan to support the addition of four large vertical-payload tubes will provide the force with near-equivalent undersea payload volume currently provided by our four dual-crewed SSGNs. This sustainment of undersea payload volume will be vital to our future security by supporting an increased volume of strike missiles and other asymmetric payloads. The payload tubes increase Virginia-class SSNs' strike volume from 12 to 40 Tomahawk missiles while protecting the full torpedo-room payload volume for sea-control missions.

This design option has been technically studied and is feasible. It would cost-effectively employ tubes like the large 87-inch bow tubes on Block III and later Virginias, making payloads that could be used in SSGN tubes and existing Virginia bow tubes able to be used in these tubes. In addition, the hardware and support equipment would match other large tube applications to a significant degree. Because these tubes would be added aft of the sail near the longitudinal center of the ship, they would be accessible to operators reaching through manway hatches (similar to SSBN tubes today). This would be an important advantage over the large-diameter bow tubes in Virginia Block III, which are not accessible.

If all 20 of the Virginia SSNs starting with Block V (beginning construction in 2019) were stretched to include this VPM, the gap in undersea strike volume would be reduced by more than three-quarters. This strike volume would be a little late, leading to a "notch" of reduced undersea strike volume from about Fiscal Year 2028 to FY 34.

Adding a payload module is a significant investment, adding about 20 percent to the cost of each ship. However, it is possible to stretch ten Virginia SSNs for the cost of a single new Ohio-like SSGN.

The Virginia class is currently planned to be a 30-hull class. The undersea investment strategy would extend the Virginia class beyond 30 hulls, allowing the Navy to exploit the cost-efficiency of continuing to build a highly effective and proven cost-efficient design while enhancing it with weapon-payload growth to help compensate for the reduced SSN force structure and the retirement of SSGNs.

4. Integrate a large-displacement unmanned undersea vehicle (LDUUV) into the undersea force. The development and fielding of capable LDUUVs will increase the productivity of the undersea force because they will do some of the tasks currently accomplished by submarines. To permit the effective integration of LDUUVs into the force, a number of technical challenges will need to be confronted. Although unmanned aerial vehicles (UAVs) are in many cases remotely piloted, the connectivity challenges associated with UUVs do not permit that option. The vehicles must be autonomous. As the technical challenges of future LDUUV missions grow, the complexity of the necessary autonomy must also grow.

In addition to autonomy, there is the well-known challenge of extending LDUUV endurance. There is good reason to believe that the aggressive investments of the automobile industry in battery technology may result in improvements that can be leveraged for LDUUVs, but this is not a given.

These vehicles need not be operated from submarines, but their greatest value in helping pick up gapped submarine taskings will, by definition, arise from forward employment in areas accessible by submarines. Submarine launch and recovery of LDUUVs forward, close to the desired operational site, will permit effective military utility even for craft with limited endurance. As their endurance grows, they will be capable of being launched by other platforms at standoff ranges. Until this endurance is achieved, forward LDUUV operations will be best supported by submarines. Even after long endurance becomes a reality, some missions will continue to require submarine launch and recovery in order to achieve the required timing and positioning. Waiting for vehicles to transit in or out from long standoff would introduce time delays that may be unacceptable in fast-moving contingency or combat operations.

The most operationally useful LDUUVs will be capable of launch and recovery from a variety of platforms, will have long endurance, will be guided by sophisticated autonomy, will have strong information-assurance capabilities to prevent risk even if the vehicles were lost, and will be capable of deploying a variety of payloads that are adaptively tailored to the mission.

5. Open the aperture on revolutionary and evolutionary payload enhancements. With a smaller force, each submarine will need to be able to hold a broader set of targets at risk and do so over a broader geographic area. Beyond LDUUVs, we must make investments in our undersea payloads and off-board capabilities as a way to further compensate for force-structure shortfalls.

Incremental evolutionary changes in existing systems will be the key to producing disruptive revolutionary effects in an affordable manner and at a rate fast enough to outpace the most sophisticated adversaries. In many ways, existing submarine-delivered missiles and torpedoes are functioning as unmanned vehicles. Emerging technology developed for UAVs and UUVs can be incorporated into the existing space and weight capacity of today's weapons to produce revolutionary effects. We will not earn the maximum return on our force structure until we fully realize the autonomous potential in some of our existing systems while we develop future unmanned systems. When we produce or upgrade our systems, we need to ensure that we use open architecture in order to easily leverage the ability of our technical community to produce and install an application or "app" for a new mission on short notice.

There are a variety of opportunities that can be investigated on relatively short timelines at low cost. Decoys, deception devices, mine countermeasures, and non-lethal weapons are all possible and being considered as part of the strategy. This category of "payload enhancements," unlike the platform-related areas, will involve a substantial degree of adaptation and, therefore, cannot be firmly defined in advance. The added capability of newly evolved payloads will greatly complicate adversary planning, make it possible for the United States to more effectively leverage the assured access resulting from undersea concealment, and deter aggression.

6. Evolve the undersea warrior. In the same way we have described the evolution of undersea payloads, the undersea warrior of the future must also evolve. To be effective, he or she must not only understand the mission, but also exercise boldness, initiative, and the ability to selectively apply the capabilities of both the submarine and unmanned assets to take full advantage of the extended reach of diverse undersea payloads. The undersea warrior must be granted the greatest possible operational autonomy to most effectively operate far forward in areas that are denied to other naval forces, exploiting subsurface concealment for military effectiveness.

The future undersea warrior will leverage remote undersea sensors for planning and targeting as seamlessly as we do today with third-party targeting of Tomahawk missiles. The smart payloads of the future will in many cases give the submarine the vertical and horizontal standoff to enhance mission safety. Other payloads may require teams of special equipment operators because of their specialized or classified capabilities. The future undersea warrior will require a diverse knowledge of the ship, its payloads, and the optimal way to coordinate the joint force in the undersea domain.

Taken together, the elements of the long-range undersea strategy minimize the decline in force structure, prioritize the investment of scarce funding to build the right ships with the right payload volume, develop innovative payloads, and evolve the skills of undersea warriors to maximize the impact of each submarine. These goals are all important, because financial constraints and the limits of industrial capacity mean that the Navy must get greater undersea effectiveness out of a shrinking force of manned platforms. The Integrated Undersea Strategy provides the nation with effective naval forces that can assure access despite future threats, sustain our undersea payload capacity affordably despite the retirement of SSGNs, preserve powerful nuclear deterrence with survivable SSBNs, and employ off-board vehicles and improved payloads to create operational and tactical flexibility even as the submarine force shrinks.
Admiral Connor is director of the U.S. Navy's Submarine Warfare Division. His prior assignments include command of the USS Seawolf (SSN-21), Submarine Squadron Eight, Task Force 54, and Task Force 74.

Deterrence From The Depths In The 21st Century
By Capt. Jim Hay (ret), Proceedings, June 2011

U.S. submarines have long given pause to would-be aggressors. But as the subsurface fleet ages, retaining our edge will be a challenge.

Deterrence is widely accepted within America's body politic as a prime objective of our national- security structure. That is not to say, however, that it is a widely understood concept. Indeed, commentary on the topic is often either over-expansive or oversimplified. The truth about deterrence is this: Of all the forces the nation needs, only those capable of taking the right action at the right time are effectively deterrent. The deterrent force is the warfighting force that keeps the peace. It is, therefore, a critical force.

It is one thing to recognize a general need for deterrence, but it is not useful to discuss it in vague terms. Today there is great pressure on government funding, and the future can be expected to offer stress on national security in many and varied ways. Now is the time to reassess the costs of all programs versus the needs of our society. Accordingly, every aspect of the national-security structure should be examined closely. In any such examination a firm understanding of the nature of deterrence—and the hardware and policy requirements necessary for its clear use—is fundamental.

The nature of deterrence is subjective. Those being deterred must understand that their unwanted actions will result in very serious and unaffordable consequences. Given that we wish to induce that kind of understanding in those with the potential to do us great harm, we can look for some guidance to our Cold War experience—even if the situations then, now, and in the future are not completely parallel. Some of the threats to be deterred in the 21st century may be quite different; others may bear striking similarities to the Cold War. In either case, the general concept followed in that era is worth examination.

The Cold War Model

A generally accepted Cold War planning objective for deterrence was to have the credible capability to deny an aggressor success and at the same time hold at risk his assets of vital interest. Not surprisingly, given the lethality of modern weapons, the hard part was to make credible any strategy with those broad objectives. In the 1960s NATO recognized the problem in relying mainly on the launch of U.S.-based ICBMs to deter Soviet aggression against Western Europe. The deterrent strategy was changed to a sequential one that employed three forces: First, meet Soviet armies with NATO ground forces; next, back that up with in-theater nuclear forces; and finally, introduce the threat of intercontinental nuclear force. Thus a credible deterrence stance of appropriate response was based on a credible warfighting stance, should deterrence fail.

A further development within that strategy came when the Soviet Union fielded its SS-20 mobile intermediate-range ballistic-missile system in the late 1970s. NATO's countermove was to install land-based cruise missiles in Western Europe—an appropriate response that enhanced the credibility of NATO's deterrence.

NATO's strategy modifications of the 1960s and '70s point to one of the key aspects of credibility in deterrence: The will to use the poised response has to be believable. That is, a potential aggressor might well presume that the United States would not initiate an intercontinental nuclear strike in response to a relatively minor aggression. But that aggressor could be deterred by the knowledge that a less-violent (non-nuclear) force was in place and prepared to strike him decisively.

Effectiveness and Survivability

If the nature of deterrence as a concept is subjective, the actual military capacity required can be quite objective. Qualitatively and quantitatively it may be addressed in terms of effectiveness and survivability. To be effective, any military system has to be seen as having the range, firepower, and performance necessary to get to the target and do what is necessary—whether that is denying the success of aggression or wreaking unacceptable havoc on vital assets. Those deterrent systems must also be regarded by the potential aggressor to be survivable, in both the pre-launch phase and during execution. Thus, if the deterrent force to be employed is non-nuclear in armament it still must have the range, firepower, performance and survivability to stop the aggressor or destroy his vital assets. The U.S. Navy's submarine force provided a significant part of American deterrence in the Cold War. It now is able to accept a greater role for the 21st century, that of a critical deterrent force.

The effect with which the critical deterrent force threatens a potential aggressor must be of sufficient strength and demonstrated accuracy to deliver a blow that is unacceptable to the aggressor. Such strength usually can be estimated by an aggressor in terms of the munitions to be expected and the damage they can cause. The delivery of those munitions also has to be viewed as a timely occurrence; it cannot be something dependent on lengthy transit from home base to launch point.

The mobility of submarine-based weapons makes them uniquely effective for deterrence. Launch can be from an unknown location, perhaps avoiding early initial detection. Variation in attack azimuth, short times of flight, and freedom from the pressure to use the striking power before losing it—these all contribute to the certainty of success, should that force have to be used. Knowledge of such peacetime readiness—lurking in undetected locations and having weapon systems of known capability and reliability—must then be a part of a potential aggressor's consideration before he takes an action that will invite response from that submarine-based force.

Along with effectiveness and timeliness, it is necessary for that critical deterrent force to have credible survivability. That is, it must not be vulnerable to an aggressor's preemptive or disarming strike of any sort. The U.S. submarine force convincingly demonstrated that invulnerability/survivability during the Cold War. The stealth of an individual submarine is vital, and the United States continuously appraises that performance, operationally and technically, as well as evaluating possible threats. That is all done through a rigorous, well-funded submarine-security program. On a force-wide basis, independent operations, the range of land-attack missiles, and the wide dispersion of units all reduce the potential for significant simultaneous force attrition.

Coupled with the military capacity needed for deterrence is the national will to use that appropriate force should an aggressor actually initiate the action(s) we want to deter. How that national will is made known to those who may wish to initiate aggression is a decision made by the National Command Authority; it reflects a fundamental war-making function of the nation. Thus a clear declarative policy statement can be a vital part of a deterrent posture.

The Submarine's Evolving Role

As the strategy of deterrence evolved during the Cold War, the place of submarines in that strategy also evolved; it can be expected to evolve further during the 21st century. The introduction of submarine-launched ballistic missiles (SLBMs) in 1960 added a new capability to the U.S. deterrent posture of land-based ICBMs and bombers, but only in small numbers of relatively short-range warheads. The first five submarines so equipped nevertheless were deployed during the Cuban Missile Crisis and were credited with having a substantial influence on the Soviet Union's backing down.

By the end of the 1960s the United States had 41 SSBNs, many carrying multiple-warhead missiles. The Polaris weapon system evolved into Poseidon—bigger missiles, each carrying multiple independent re-entry vehicles—and then finally into the Trident system, with very long-range missiles carrying multiple sophisticated warheads capable of destroying hardened targets. Throughout that period submarine stealth was exploited to ensure the survivability of the SSBN force. Currently the sea-based SLBM force is made up of 14 Ohio–class submarines, each having 24 tubes loaded with D-5 Trident II missiles. Four of that class have been modified as SSGNs—cruise missile launchers—with 22 of the 24 installed tubes each capable of carrying and launching seven non-nuclear Tomahawks, a total load of 154 cruise missiles. (Two tubes on each of those ships are for special operations force use.)

By the final phase of the Cold War the U.S. Navy's fleet of attack submarines (SSNs) was also in play in our deterrence posture. Although not entered as a strategic force asset in any of the various listings of naval ship categories, SSNs demonstrated that they could hold Soviet strategic submarines at risk. The resultant asymmetry in assured survivability between the widely spread, non-detectable American SSBN force and its Soviet counterpart—deployed relatively tightly near home waters—was apparent to Soviet authorities. Also apparent to the Kremlin was the long-term presence of U.S. attack submarines in waters far from their homeports and out of usual U.S. Fleet operating areas.

Diverse New Threats

The threats we may face today and in the near- to mid-term future are not as focused as those of the Cold War. One very obvious added factor is the diffuse non-state threat, such as that which so tragically succeeded on 9/11. That sort of enemy and attack may not be susceptible to deterrence from nuclear armed forces. There also is the potential of nuclear attack by a rogue state, be it Iran, North Korea, or even an extreme Islamist regime in Pakistan.

Perhaps the most serious threat, however, is that of two peer, or near-peer competitors, Russia and China. There is no guarantee that Russia will not eventually re-emerge with significant attack potential, backed up with ominous indications of aggressive intentions. The United States has experience, however, with Russia. Deterring any perceived threat from China may not be as straightforward. Time could well be the telling factor in how to handle a simultaneous dual-peer threat. China continues to build quite competent land- and sea-based nuclear forces. Russia could regain strength and feel the need to reclaim its superpower status by challenging the United States. Having those two powers in very strong positions to oppose the United States sometime soon—say the 2020s—could be stressful indeed for our deterrence forces.

China is an unknown in how much of a direct threat it may become. Indirectly it can pose a threat to our allies in the Middle East, South Asia, and East Asia. Even if not actually the attacking state, China could well be senior guarantor for an attack by North Korea, Iran, or Pakistan. As for being a direct threat, it is well known that the Chinese are building a strategic submarine force of new- generation SSBNs, and most observers believe that force will comprise at least five or six submarines.

Since those vessels are still being built, one can only speculate as to their operations, which would disclose some idea of China's intentions. It does seem possible, even probable, that whatever those operations reveal, or what declarations are made by Beijing, Chinese SSBNs will be able to access the open-ocean areas of the Pacific and put targets in the United States at risk. American attack submarines, therefore, must maintain an ability to track any and all such Chinese SSBN deployments; an effective antisubmarine warfare support structure must exist for day-to-day coverage of all Chinese submarines and detection of any operational moves toward deployment.

Looking at the mid-term future of the non-trivial threat of non-state terrorist action against the United States it is probably safe to assume a resurgence of that potential once U.S. and allied ground forces stand down from proximity to terrorists' safe areas. In that case deterrence by non-nuclear force will not be the same as postured by NATO in the 1960s, '70s, and '80s—or by the strong air/land posture now in force in Afghanistan. Without a secure base infrastructure from which to launch, the deterrent striking force will have to be based at sea with either carrier-borne tactical air, or cruise missiles, or perhaps both.

Constant, Undetected Deterrence

The SSGN force of four cruise missile-launching submarines can provide that formidable-but-less-than-nuclear (and therefore believable) deterrent force needed to cover terrorist cells in the central Asia area and, if necessary, around the Horn of Africa. With Blue and Gold crews those four ships are fully capable of maintaining the constant undetected at-sea presence necessary for real deterrence, although some time/range relaxation may be necessary during alert patrol. The very sophisticated command centers on those ships are capable of processing intelligence and formulating in-theater strike planning in real time. With that force, enduring presence within range of launch equals constant pressure on those to be deterred.

Additionally, the SSN force is capable of providing cruise missile coverage for reactive fires while conducting intelligence, surveillance and reconnaissance (ISR)patrols in ocean areas adjacent to major and minor threats. Once again it is a case of enduring presence/constant pressure. The advantage of having an SSN force capable of launching land-attack cruise missiles is so compelling there is active discussion

about increasing that capability in construction of the new Virginia–class submarines. That advantage is in the increase of in-theater deterrence during peacetime deployments and in wartime firepower.

Submarine participation in the deterrence of major threats will continue to be carried out by the present SLBM force of Ohio–class submarines. Day-to-day coverage by those submarines consists of target packages that are part of the national Single Integrated Operational Plan, which can be executed by the submarine within very stringent time requirements. It is not strictly true, however, that the SLBMs are of use only in scheduled strikes at fixed targets. There is flexibility in target assignment that can be directed by the National Command Authority and introduced on board.

The currently deployed Trident II missile has long range and excellent accuracy. Each multiple independently targeted warhead has enough explosive power, when coupled with the high accuracy achieved, to make a hard-target kill; i.e., it can destroy a silo and most hardened bunkers. The missile's range also lends itself directly to the survivability of the SSBN since it permits the submarine to operate in very large areas of the ocean yet remain within range of targets.

Three Challenges for Two Decades

Our naval submarine force is fully capable of doing its part in today's deterrence. The problem is not in execution but in planning and building the ships and weapons needed by 2020 and 2030. Three major challenges face the nation as it plans for the deterrence needed to prevent war in that span.

• The primary challenge is to build the ships necessary to replace the Ohio class of SSBNs as they, in turn, reach the end of their useful lives. That program is proceeding through the required process for acquisition of major defense programs. There appears to be broad-based recognition of the need for the replacement program and significant support. The problem, of course, is the projected cost, given that spending is under close scrutiny and unusual pressure. On one hand the individual cost per unit is an attention-getter. On the other is the matter of relative cost in terms of the overall Navy and Defense procurement programs—and what may not be funded because of the cost of the program.

• The second challenge has to do with the well-known shortfall in the SSN force level. This will occur over several years, as the current Los Angeles–class attack submarines continue to be decommissioned. The current building program of Virginia–class SSNs, even at the recently extended rate of two per year, cannot keep up with the decreasing numbers; the force level of attack boats will hit a historic low.

• The third challenge (arising at about the same time) will be a shortfall in strike assets available as the entire SSGN force (in the oldest of the Ohio–class hulls) will have to be decommissioned as its functional lifespan ends.

The potential, of course, is that the period 10 to 15 years in the future, when all these shortfalls could come upon us, will prove to be a very real problem for the United States, and the many allies who depend on its strength. Earlier, a worst-case scenario was postulated: a dual-peer confrontation that could be faced around that time. It's even possible the non-state terrorists will have recovered enough strength by then to again be flexing their muscles in a worrisome manner.

Worst case or not, U.S. deterrence will have to be up to the task of convincing those wishing to do harm to the United States and its allies that the consequences of their actions will be real, timely, and drastic enough to be unacceptable to themselves and their people. Fortunately, the naval submarine force, the Navy's submarine acquisition community, and their industry partners are treating those three challenges as just that—problems to be met and solved.

Overcoming Hurdles and Shortfalls

The highest-priority SSBN replacement program is recognized as needing constant attention at all levels and real discipline in keeping to all details of requirements, schedule, and cost control. The submarine community was cited for doing all of that in the on-time, below-cost production of the Virginia class, and it knows that the level of effort for the SSBN replacement program will have to exceed that performance.

To avoid making the shortfall in attack boats much worse, it is crucial that performance in the Virginia–class production be of such a high standard that policy makers continue the two-ships-per-year program. In addition, there are some programmatics being studied to level out the anticipated shortfall. The importance of the SSNs, in quantity and quality, is very real. It is their everyday constant and enduring ISR presence/reactive pressure that can produce useful fruit in the minds of potential opponents.

The matter of a shortfall in strike assets on retirement of the SSGNs is not a simple one to solve. One obvious partial solution is the increase of the cruise missile capacity of new-construction attack submarines by adding extra launch tubes. Increasing the capability of the cruise missile itself to permit multiple warheads to be carried and individually targeted might be another solution.

A final observation may well be the most important: Probably the best deterrent is having the force most likely to win the final battle in place and ready to fight—and triumph decisively—at the first flash of combat. The aggressor has to be able to see the resultant end game before he initiates action. U.S. Navy submarines play a major role in that deterrence.

Captain Hay, a retired submarine officer, has served in an SSK, an SS, an SSRN, two SSNs, and two SSBNs—commanding the last two. He was a military assistant in the Office of the Secretary of Defense, commanded Naval Submarine Base New London, Connecticut, and was chief of staff of Submarine Group Eight in the Mediterranean. Currently he is editor of The Submarine Review.

Holy Mackerel, Not Again!

By Lt. Joel Holwitt, Proceedings, June 2011

As the U.S. Navy's submarine force faces tighter budgets, it could learn a thing or two from solutions that surfaced from an informal Submarine Officers Conference in the 1920s.

Rear Admiral C. S. Freeman, Commander U.S. Submarine Force, could not believe it. Despite a decade of development on the Navy's fleet submarine, some senior naval officers still insisted on building smaller, cheaper, but far less capable versions. In response, Freeman wrote to Admiral William D. Leahy, the Chief of the Naval Operations:

While it is true that we have some very large and some very small submarines, this is the result of prolonged experimentation to determine the size most adaptable to our needs. In other words, this experimentation has not represented an objective search for a large submarine or a small submarine as such, but a seeking for the submarine to fit our special requirements, much as we have sought after a battleship type and a destroyer type to meet the needs of the fleet . . . this command believes that our energies should be

concentrated on the development and perfection of a single type submarine sufficiently flexible to carry out any of the duties as outlined by our war plans. . . .1

The date was 27 July 1938. Freeman's opposition to the small submarines proved prophetic: The 800-ton (surfaced displacement) USS Mackerel (SS-204) and Marlin (SS-205) proved to be utterly unsatisfactory for operations and ended up as training vessels during World War II.2

Freeman's words could have been written today by almost any career submariner in response to the frequent argument, made on an annual basis in the pages of Proceedings, about adopting conventional attack submarines (SSKs). But as we enter an age of limited budgets and tough choices about what weapon systems are truly necessary, the submarine force is going to be pushed to strongly consider cheaper alternatives like the SSK.

Consequently, it's worth reviewing how the interwar submarine force, faced with similar choices regarding limited tonnage and funding, determined the right characteristics and produced the fleet submarine that won the decisive undersea campaign in World War II.

Submarines between the World Wars

The interwar force was charged with supporting the rest of the Navy by scouting ahead of the battle fleet and skirmishing with the enemy, presumably in the Western Pacific Ocean. This was a tall order, given that the predominant type of submarines built at the end of World War I (the S-class) did not have the surface speed or endurance to make a long trans-Pacific transit and stay ahead of the battle fleet. Therefore, the Navy used a 1916 congressional authorization to build nine "fleet submarines" to investigate the characteristics necessary for future subsurface vessels.3 Those were known as the V-submarines, though they were all different from each other in design.

After significant disappointment with the first three V-boats, which were designed with limited input from the submarine force, Secretary of the Navy Curtis D. Wilbur and Admiral Edward W. Eberle, Chief of Naval Operations, directed the Submarine Officers Conference—an informal advisory group established after World War I—to advise the Navy's leadership in 1926.4 By 1930, the conference had identified the ideal characteristics of a fleet submarine: long range, high surfaced-speed, and sufficient weaponry.5

Achieving the necessary range required a large enough displacement to carry the fuel and supplies needed for extended operations. In terms of speed, submarines had to be able to keep ahead of the U.S. Fleet under normal conditions. In 1930, Admiral William V. Pratt, Commander-in-Chief of the U.S. Fleet, identified the optimum speed as 15 knots, the cruising speed of battleships. As long as the submarines left before the Fleet, they could stay far ahead of it.6

But just as the Navy finally settled on the characteristics it wanted in its submarines, the submariners found their ability to experiment limited by treaty restrictions. In 1930, the United States signed the London Naval Treaty, limiting the amount of tonnage displaced by all American submarines combined to only 52,700.7

Unfortunately, the Navy had already devoted a significant amount of tonnage to submarines. As the service continued to build V-boats, they had become progressively larger, with the V-5 and V-6 displacing an incredible 3,158 tons when fully loaded on the surface. The massive displacement had been considered necessary to install large diesel engines for the V-boats to achieve surface speeds up to 17 knots.8 Because of the bulky handling characteristics of those large submarines and the constraints of the treaty, submariners began looking for smaller designs that could still operate with the necessary speed and deliver a significant load of torpedoes.

Downsizing, Speed-Rising

The first of the smaller and experimental submarines was the USS Dolphin (SS-169), displacing only 1,550 tons on the surface. Its layout foreshadowed the future Fleet submarines. In a continuing trend to decrease size in order to make as many as possible, the next two submarines, the USS Cachalot (SS-170) and Cuttlefish (SS-171), displaced only 1,110 tons on the surface.9

Unfortunately, their twin foreign-made MAN engines performed poorly, and commanders were uncomfortable with the thought of being in enemy waters with only two main engines.10 Consequently, the submarine force reversed the trend of decreasing size. Using the Cachalot and Cuttlefish as a bottom line, the force started adding better engines and additional components to meet the required characteristics.

In 1933, with new technology available from the General Motors Winton diesel division, the Bureau of Engineering installed four engines and an all-electric drive into the new Porpoise–class submarines. The all-electric drive transferred energy directly from the diesels to the electric motors that turned the propeller shafts, allowing the USS Porpoise (SS-172) to reach 19 knots on the surface, a speed American submarines had never attained before.11 The all-electric drive went on to power the mainstay U.S. submarines of World War II, far surpassing the modest 15-knot speed requirement Admiral Pratt had called for in 1930. In fact, starting with the 1940 Tambor class, American submarines regularly made up to 20.25 knots on the surface.12

A combination of submariners and industry together created innovative technological advancements that made the smaller fleet submarines more capable than their larger V-class predecessors. For example, in 1930 submariners were using rudimentary "is-was" circular slide rules to aim torpedo salvoes.13 But starting in 1932, the Bureau of Ordnance coordinated with Arma and Ford Instruments to develop a small but advanced analog fire-control computer. The Arma Mk 1 torpedo data computer, or TDC, was completed in 1938, and further competition between Arma and Ford Instruments produced the Arma Mk 3 TDC, which turned out to be pivotal to the success of the U.S. submarine campaign during World War II. 14

And perhaps the most important advance that allowed for operations in the tropics of the Pacific Ocean was the inclusion of air conditioning. In addition to eliminating electrical short circuits, metal corrosion, and mildew in mattresses and clothing, that technology genuinely improved the habitability of U.S. submarines.15

The Right Submarine for the Job

When war came, the 1,500-ton (surface displacement) Gato-class fleet submarine fully met the Navy's needs in the Pacific. Its high speed not only allowed it to proceed far ahead of American surface forces and maintain contact with the enemy, but it also allowed submarines to outflank slower merchant convoys. With their displacement, fuel capacity, and technological innovations, submarines had the range to shadow Japanese movements all the way from the Sea of Japan or stay on station for almost two months. U.S. submarines eventually sank 55 percent of all Japanese shipping.

Those characteristics still guide our submarine design. With the exception of three permanently forward-deployed fast-attack nuclear-powered submarines out of Guam, and the four Ohio–class guided-missile submarines that operate forward-deployed and periodically return to Bangor, Washington, and King's Bay, Georgia, for upkeep, the rest of the force still has to transit long distances, remain on station for extended periods, and carry enough weapons and sensors to make the trips worthwhile. To a degree that could not have been imagined in the 1930s, nuclear power permits U.S. submarines to accomplish these tasks with remarkable high speed and long range.

Any one of the Fleet's nuclear-powered submarines can transit continuously at speeds that even the best conventional submarines can only maintain for a brief time, and they can do it for weeks on end. As a result, much as Admiral Freeman opposed the Marlin and Mackerel, our current submarine force has strongly resisted any attempt to adopt a less capable design.

But much as the London Naval Treaty forced the U.S. force to develop a smaller submarine that incorporated most of the desired capabilities, our current force faces a similar challenge over the coming years with a combination of the budget crunch coupled with the need to replace the retiring Los Angeles–class submarines. Secretary of Defense Robert Gates summed up the budgetary shortfall at the Eisenhower Library in May 2010: "Given America's difficult economic circumstances and parlous fiscal condition, military spending on things large and small can and should expect closer, harsher scrutiny. The gusher has been turned off, and will stay off for a good period of time."16

Only a few days before, Secretary Gates had specifically targeted the Navy's spending: "At the end of the day, we have to ask whether the nation can really afford a Navy that relies on $3 to $6 billion destroyers, $7 billion submarines, and $11 billion carriers."17 He was referring to the expected cost per unit of the next-generation ballistic-missile submarine. But meanwhile, the Virginia–class submarines cost about $2 billion, with some expected cost savings as more are built. Because of these high costs, our force is constrained to making only two additional attack submarines a year, with possible additional pressure coming from the development of the next-generation ballistic-missile submarine.18

What's the Mission?

This means that our force will fall below the minimum number of 48 attack submarines, which provide the unified combatant commanders their daily requirement of 10 fast attack submarines, sometime around 2024. The numbers will drop into the 30s and may remain fewer than 48 indefinitely. If we do not find a way to cut costs and build additional capable but cheaper submarines, our force will be stretched thin for an unacceptable amount of time.19

Today's force needs to replicate the successful response to the London Naval Treaty of 1930 by seriously considering what sort of missions our submarines must carry out and what sort of capabilities they entail. Anything extra must be removed in the interest of reducing cost.

In addition, the very size of our submarines should be seriously reconsidered. From the Skipjack (SSN-585) to the Virginia (SSN-774), our nuclear attack submarines have jumped in size from 3,500 tons to 7,800 tons submerged. Admittedly the size increase was accompanied by a boost in capabilities, sensors, weapon load-out, and auxiliary equipment like water-distillation plants and oxygen generators. But this expanded crew size by almost 50 percent and required an increase in engine-room size to allow newer submarines to make the same speed as the much smaller Skipjack class.

So it seems worthwhile to investigate if we can build a smaller submarine, using a true Albacore-like teardrop hull and hydrodynamic advances to maximize propulsion as well as using the advances in engineering technology and modular design showcased by the Virginia. And just as the original Los Angeles–class submarines were not built with a retractable towed array or ARCI (acoustic rapid commercial off-the-shelf insertion) systems, which were installed well after construction, we can leave open the possibility of backfitting cutting-edge technologies.

Similarly, this might mean eliminating capabilities like vertical launch tubes or Special Operations Forces transport. But reducing some optional capabilities should be considered if we can possibly construct two smaller nuclear attack submarines for the cost of one Virginia class. After all, every submarine does not need to do everything.

The Trouble with SSKs

Some naval thinkers, such as Naval War College Professor Milan Vego and then-Navy Commander Henry J. Hendrix, argue that the answer to this pressing question is the SSK. In recent articles in Proceedings, both Dr. Vego and now-Captain Hendrix argued that a few SSKs could supplement the current SSN force and prove to be more capable in the littorals. Current foreign-built SSKs have the advantage of being much cheaper than the Virginia–class submarine, costing between $365 million to $500 million. They require a smaller crew of about 30 people, as opposed to the 150 personnel on board a U.S. Navy fast-attack submarine. Moreover, advances in air-independent-propulsion technology, fire-control computer systems, and sonar systems have arguably shrunk the tactical gap between nuclear attack submarines and SSKs.20

But before we blindly accept these promised advantages, we need to ask the following questions:

Will these submarines really be significantly cheaper? Does the cost savings of foreign SSKs stem from the lack of a nuclear power plant and nuclear-related components, or are the savings actually realized because foreign countries do not build their submarines to the high but expensive standards of SUBSAFE shipbuilding and maintenance practices? In short, will this really be a worthwhile and cheaper option if we take into account the stringent requirements, tested in blood, of the U.S. submarine force?

When we ask these questions, we need to look at not just the construction but also the life costs of the ship. A nuclear reactor may cost a significant amount of money, but advances in reactor design and technology mean that current reactors will never have to be refueled for the life of the ship, while the only direction conventional fuel prices seem to be going is up. Another question to ask is: How much will the fuel for a conventional submarine cost in 30 years?

Can this submarine provide the necessary power to support the fire-control, sonar-processing, and crew amenities we desire? Advances in sonar sensors and fire-control computer processing provide U.S. nuclear submarines with a decided advantage against many adversaries. A conventional submarine without sufficient electrical power to run and cool the advanced-sonar and fire-control processing of a nuclear submarine would be a definite drop in capabilities and not a worthwhile investment. And once again, the cost involved with installing and maintaining these systems must be taken into account. If foreign-built SSKs are significantly cheaper because they do not have this sort of processing, then maybe they're not worth buying.

Will a reduced crew be able to deal with the challenges of intense missions vital to national security? A smaller crew means less space required for berthing, messing, and stores, as well as diminished trash production. But this also means that even with automation, there is still a lot of strain each crew member must deal with, including day-to-day tasks such as field days, stores loads, preventive maintenance, and all-hands evolutions like mooring and under ways. And during periods of high stress, such as war and overcoming major casualties, the small crew size will mean each person will be cycled excessively. More Subs for Less Money.

Connecticut Skipper Sacked; 12th CO Fired In 2011

By Sam Fellman, Navy Times, June 13, 2011

The Navy fired the commanding officer of a Seawolf-class attack submarine June 6 after learning he had mishandled classified material and then lied about it, the Submarine Force Pacific spokeswoman said June 7. He is the 12th CO fired this year.

Cmdr. Mike Varney, who took command of the Bangor, Wash.-based attack sub Connecticut in February 2009, was fired by Capt. Brian Howes, the commander of Submarine Development Squadron 5, according to SUBPAC spokeswoman Cmdr. Christy Hagen.

Varney was relieved June 6 after receiving nonjudicial punishment at captain's mast for making a false official statement, interfering in an adverse administrative proceeding and violating a lawful general order, Hagen said.

The SUBPAC-led investigation began March 8 after suspicion arose during a routine screening process that classified material had been mishandled, Hagen said.

Hagen said the investigation had concluded but declined to go into more detail.

"At this time, it'd be inappropriate for me to talk about or to disclose the details on the classified information that wasn't handled properly," Hagen said. "I will say, it's based on the investigation to date. No malicious intent was indicated. He just failed to live up to the meticulous standards we have for control of classified material."

Varney is the first submarine commander sacked this year. Three were fired in 2010, two of them for personal misconduct.

Varney, 45, a native of Kittery Point, Maine, is a 1990 Naval Academy graduate. Varney served aboard attack subs Augusta, Key West and Topeka.

Subsequently, Varney led a provincial reconstruction team in Sharnra, Afghanistan, beginning in 2006.

There, Varney earned a reputation as a capable leader. In 2006, the Navy's top officer paid tribute to him as a submarine leader in the mold of Nimitz and Rickover in a speech at a submarine birthday ball.

"It's submarine officers like Cmdr. Mike Varney, who is right now in Afghanistan commanding one of six Navy-led provisional reconstruction teams, a joint unit that is fixing roads, repairing schools and clinics, and drilling wells — [who are] making every imaginable effort to improve the lives of the Afghan people," said Adm. Mike Mullen, then-chief of naval operations.

During his 21-year career, Varney has been awarded the Bronze Star, three Meritorious Service Medals and two Navy-Marine Corps Commendation Medals, as well as various campaign and achievement medals. Calls and emails seeking comment from Varney were not returned.

Connecticut returned April 27 from its two-month deployment as part of Ice Exercise 2011, a high-profile event visited by Navy Secretary Ray Mabus and congressmen. During this exercise, the sub broke through the polar cap, operated below the ice and tested new equipment, including high-frequency sonar and the Deep Siren acoustic communications system.

"Science played a large part in our operations in the Arctic, especially how best to measure the environment we were in," Varney said in a Navy news story afterward. Varney has been reassigned to the staff of Navy Region Northwest, Hagen said. Capt. Benjamin Pearson, deputy commander of Submarine Development Squadron 5, has assumed command until a permanent replacement is named.

U.S. Navy Needs Diesel Submarines

By Gary Schmitt, Defense News, June 12, 2011

The U.S. Navy faces a fundamental dilemma: It needs more submarines, but the overall defense budget required to build those submarines is headed south. How should it square this circle?

The answer is that the Navy should procure a fleet of diesel-powered subs. Not only are diesels cheaper than nuclear-powered subs, but they have the advantage of being better platforms for many of the tasks the Navy faces today.

The demand for attack submarines is both quantitative and qualitative. Over the past two decades, for example, China has added more than 40 new submarines. Although they are not equivalent to ours, they still need to be tracked - and that takes numbers. Meanwhile, the list of actual and potential submarine missions, including close-in intelligence, surveillance and reconnaissance, special operations, and blockade and mining, continues to grow.

These growing operational demands are coupled with the exigencies of new undersea requirements. In addition to the deep-sea dives and prolonged blue-water missions that became the staple of submarine operations during the Cold War, there are a number of scenarios today that are focused on the littoral areas, the green water within 100 miles of land, be they in the strait of Hormuz or Malacca, off the shores of Taiwan or in the South China Sea.

It is these missions that often favor diesel submarines. Diesel subs are smaller, stealthier and more maneuverable in tight spaces than nuclear submarines. For example, unlike a nuclear submarine's power plant, a diesel's primary engine can be turned off when submerged, reducing noise emission. Indeed, unlike a nuclear-powered submarine, a modern diesel can hide on the ocean's floor, deadly silent, while monitoring whatever passes over and around it.

And with the advent of Air Independent Propulsion (AIP) technology, today's diesel subs can remain submerged for weeks at a time. When deployed to bases in the Far East or Middle East, the range and reach of today's AIP-equipped diesels would put them well within striking distance of critical choke points.

And, using the recent sale price of Germany's Type 212 subs to Turkey as a point of reference - approximately $500 million versus the $2 billion for a Virginia-class nuclear attack submarine - the Navy would be able to ramp up submarine production without breaking the bank.

The U.S. Navy is not ignorant of the advantages of diesel subs. Time and again, American naval crews have struggled to detect their diesel-electric "foes" at sea. Over the past two years, for example, Peruvian and Chilean diesels have made life extremely tough for the U.S. in naval exercises.

Nor is this new; in a joint training exercise in 2005, a Swedish AIP-outfitted Götland-class sub scored a "strike" on the carrier Ronald Reagan. And, most famously, in 2006 a Chinese Song-class diesel submarine surfaced undetected within striking distance of the carrier Kitty Hawk off Japanese waters.

Building diesel submarines in the U.S. has other advantages as well. There is a growing global market for diesel submarines among allies and partners and it's work U.S. shipyards certainly could use. In addition, having diesels in the fleet provides an in-house training tool for anti-submarine warfare efforts against other nations' diesels. It is useful to remember that Russia and China have successfully incorporated both diesel and nuclear submarines into their force structure.

Of course, the U.S. Navy has been dead set against building anything but nuclear-powered submarines for a half-century now. Indeed, one reason the offer of a sale of eight diesel submarines to Taiwan made by President George W. Bush in 2001 has never gotten off the ground is because the Navy brass has feared that any diesel construction in the U.S., even if strictly for foreign sales, might open the door to Congress asking, "Why not for our own fleet?"

In addition to the decades-old, Rickover-induced inertia, the new excuse for not building diesels is the claim that the missions that diesels might usefully perform can be handled with unmanned underwater vehicles (UUVs). Why build a new class of submarine when UUVs attached to nuclear submarines can carry out those tasks?

But while UUVs are a promising idea, "promising" is the key here. Significant questions pertaining to speed, payload, sensors and communication remain.

In what was billed as Defense Secretary Robert Gates' valedictory policy speech at the American Enterprise Institute on May 24, he noted that "more and more money is consumed by fewer and fewer platforms," and that, in the future, the department's "guiding principle … must be to develop technology and field weapons that are affordable, versatile, and relevant to the most likely and lethal threats in the decades to come."

That's a spot-on assessment as to why the U.S. Navy needs diesel submarines.

Gary Schmitt, director of the advanced strategic studies program at the American Enterprise Institute (AEI), and Richard Cleary, research assistant for the AEI's Program on Advanced Strategic Studies.

The Pride Of Iran

Strategy Page, June 11, 2011

Iran sent a Kilo class submarine to the Red Sea last month. Back home, Iran is building a new class of mini-subs. Iran has always had a yearning for subs. Back in the 1970s, the monarchy came very close to acquiring three surplus US-diesels-electric boats as well as a new German Type 209. Iranian crews had been trained in an American submarine school, but the 1979 Islamic revolution prevented these crews from getting their boats. In the late 1980s, the Islamic Republic of Iran Navy acquired a few midget subs from North Korea. These boats were capable of delivering frogmen covertly, or carrying naval mines to attack shipping and harbors.

Iran took the big leap in the early 1990s when they acquired three Kilo Project 877/636 type diesel electric submarines from Russia. The 2300 ton Kilos are long range subs capable of operating throughout the Indian Ocean (from South Africa to Australia). The Kilo's have six 533mm (21 inch) torpedo tubes and 18 torpedoes (including one or more Shkval rocket torpedo), or 24 mines. Very similar to the world-standard diesel submarine, the 1800-ton German Type 209, the Kilo is a formidable foe and can stay at sea for up to 45 days, which makes it capable of long range patrols, like the current one in the Red Sea. This, in fact, is the farthest any of the Iranian Kilos have ever travelled from home.

The last of these three Kilos were delivered in 1996, which gives Iranian crews more than a decade of experience. Google Earth has often spotted the trio tied up in harbor at Bandar Abbas; however, they have made several training cruises to the Persian Gulf and Arabian Sea. The recent Red Sea operation may be a game changer.

Now the bad news (if you are a fan of the Iranian Navy). Russia agreed to shut off the submarine pipeline to Iran in 1996 and since then Iran has been working on their own designs. After ten years of trial and error, they produced the 100 ton Ghadir (Qadir) class vessels in 2005. By 2010, they professed to have a fleet of 11 of these small diesel electric subs in their arsenal and no less than four have been shown together and photographed. These smaller Ghadir-class vessels are squarely between the old midget submarines and the Russian Kilos. The Iranians are not releasing specification sheets to anyone but they look very similar to the Italian made Cosmos SX-506B submarines that Columbia has operated since the 1980s. The 100-ton SX-506Bs are only large enough to carry commandos and mines. However released news footage shows what looks like to be two torpedo tubes on the Iranian craft.

It should be remembered that Cosmos exported a number of larger vessels to Pakistan in the 1990s. Dubbed the SX-756, they may have been the design basis for these Ghadir. It should also be acknowledged that the North Korean Sang-O class submarine closely approximates the Ghadir type. In 2007 North Korea gave Iran outright four of its Yugo-type midget submarines. These Yugos were well worn 90-ton 65-foot craft but Iran accepted them all the same.

A one-off design, dubbed the Nahang, was produced in 2006. At about 500-tons it is the same size as and closely resembled the old German Type-206 class. The Type 206s were produced in the 1960s for operations in the confined shallows of the Baltic. Denmark, Norway, Germany and now Indonesia used variants for forty years. The Type 206's size enabled it to carry eight torpedo tubes with no reloads. The Iranian version does not seem to be a success and little has been seen of this craft.

Under construction is what will be the third indigenous Iranian design. Laid down in 2008, the Qaaem will be a 1000-ton craft and historically should be large enough to handle a full set of torpedo tubes along with a reload. They could be the possible replacement for Iran's Kilos. The Kilo platform has a lifespan of 30-years and they are more than halfway there. But Iran has a mixed record when it comes to warship construction, and the Qadir boats are reported to be troublesome to use and not safe. The Iranians are enthusiastic about having more subs, but developing that capability is very expensive and time consuming.

Russian Submarine Works With U.S. Sub Rescue System For First Time

By Chief Mass Communication Specialist (SW/AW) Kathryn Whittenberger, Commander, Submarine Force, U.S. Atlantic Fleet Public Affairs, June 9, 2011

At Sea (NNS) — A historic international milestone was achieved when the Russian submarine, SSK Alrosa, mated with a U.S. submarine rescue system during exercise Bold Monarch 2011, June 7.

The coupling of the U.S. Submarine Rescue Diving and Recompression System (SRDRS) and the Russian submarine established an international interoperability and cooperation between the two nations.

"During Bold Monarch, 13 countries worked together to save submariners from the depths of the sea," said Capt. David Dittmer, deputy commander, Submarines North and tactical commander of all the units involved in the exercise.

Bold Monarch 2011 is a NATO exercise supported by both the Submarine Escape and Rescue Working Group (SMERWG) and the International Submarine Escape and Rescue Liaison Office (ISMERLO). Submarine escape and rescue is an international humanitarian aid effort that requires cooperation across national and alliance boundaries. ISMERLO was established in 2004 and is the international coordinating hub for global submarine rescue procedure, systems, equipment and support ships. It also ensures at least one of the world's rescue systems is available to be deployed immediately should an emergency occur.

The exercise took place off the coast of Spain, and featured submarines from Spain, Russia, Portugal and Turkey. Submarine rescue systems from the U.S., Russia, Italy and a jointly-owned NATO asset were proven compatible with every submarine.

"We enjoyed this chance to work together," said Capt. George Shelest, a Russian Federation Navy officer from the Russian Federation Navy Liaison Office. "It was a demonstration of good will from both sides, and a demonstration of the compatibility of our systems. I think that gives more of a chance to be saved if something goes wrong."

The coordinator of ISMERLO concurred with Shelest's assessment.

"The cooperation shown between all the participants and observers of the exercise demonstrates the growing importance of international cooperation," said Bill Orr. "Now there is a greater chance of ensuring a successful rescue if a submarine casualty occurs."

The historical significance of the operation and exercise permeated the thoughts of all who participated, but resonated greatly with a U.S. Sailor assigned to the Deep Submergence Unit (DSU).

"Deep Submergence Unit is unique," said Machinist's Mate 2nd Class Joel Rivera, a forward attendant for SRDRS and whose DSU command is the U.S. Navy's sole provider of submarine rescue capability. "I never thought I'd be able to walk around on a Russian submarine; before I came to this unit, I didn't know these rescue capabilities existed. As a submariner, I will be more comfortable going back to submarines knowing all of these countries are willing to help if something goes wrong."

Rivera and U.S. Navy Sailor Joe Olin, a second class Navy Diver, presented Col. Zaycer Anton, commanding officer of the Alrosa, a plaque and an American flag to commemorate and honor the historical moment and cooperative effort between the Russian submarine and the U.S. rescue system.

More than 40 countries are known to operate more than 440 submarines world-wide, making the confirmation of rescue abilities between nations vital. These exercises foster safety and the ability to work together on a survival level, and also promote understanding and a commitment to stability through regional cooperation.

For more news from Commander, Submarine Force, U.S. Atlantic Fleet, visit www.navy.mil/local/sublant/.

Second Group Of Women Chosen For Submarine Service

By Jennifer McDermott, The Day, June 10, 2011

The Navy has selected the second group of women to serve on submarines and plans to assign female officers to the crews of two more submarines.

The first female submarine officers, currently in training, are scheduled to report to their submarines at the end of this year. Secretary of the Navy Ray Mabus said the second group was recently chosen because integrating women into the submarine force is a continuous process, "not a one-shot thing."

Women in the new group will be assigned to two submarines in addition to the initial four that will have women serving on them by the end of 2011. In an interview Wednesday, Mabus said, "these things are moving at a pretty rapid rate" because the Navy was not going to make a big announcement about putting women on submarines, assign a few women to submarine crews and then forget about it.

"We're going to do the same thing we did with surface ships, which is fully integrate women into the crews of all classes," he said after speaking this week at the U.S. Naval War College in Newport, R.I.

The Navy officially lifted its ban last year and began preparing to bring female officers aboard ballistic-missile and guided-missile submarines - the USS Wyoming (SSBN 742) and USS Georgia (SSGN 729), both in Kings Bay, Ga., and the USS Maine (SSBN 741), and USS Ohio (SSGN 726), both in Bangor, Wash.

Two of the women chosen for submarine duty decided to pursue graduate studies, while one other was medically disqualified, leaving 18 in training today. Eight are currently in Groton for the 10-week officer basic course.

Attrition was expected since the training is a long process, Mabus said, with six months of Nuclear Power School, six months of Naval Nuclear Prototype Training and the officer course. And, he said, the women still in the program "seem to be doing great," with no unexpected challenges in the training so far.

He attributed the seamless transition to the fact that the Navy has been doing "nuclear and sub training for so long" and "there's no gender difference to nuclear power."

The second group is made up of 18 women, with close to half coming from the Naval Academy and four from the Reserve Officers Training Corps. The rest are from other commissioning programs.

They will serve on four crews for the two submarines. The Navy plans to assign four female supply corps officers to fill department head roles and serve as mentors, as it is doing for the initial four submarines. The two submarines have not yet been identified, nor have the supply corps officers been selected.

Women still are not allowed on the smaller fast-attack boats, the only type of submarine homeported in Groton, and enlisted women currently can't serve on submarines.

Mabus said that while the Navy has begun with female officers on ballistic-missile and guided-missile submarines, "that's going to be expanded."

China Has Joined The Club With Its First Aircraft Carrier

Bear in mind that the United States has two more active carriers than the rest of the world combined

By Matthew Good, The Guardian, June 9, 2011

It's been revealed that the Chinese are building their first aircraft carrier, the Varyag. At 300 metres in length, it will be 30 metres shorter than a US Nimitz class super-carrier. The hull of the Varyag dates back to the 1980s, was initially constructed by the Russians, and sat in a dockyard in the Ukraine rusting until it was purchased by the Chinese. While the vessel is set for sea trials later this year, the Chinese still have to master its use, including learning how to launch and recover jets, which should take them several more years to accomplish.

The fact that the Chinese will possess a carrier has some defence analysts concerned, but they'd be the sort that view any alteration in the current global status quo discomforting. The United States currently has 11 carriers, all Nimitz class boats, with three new carriers currently in production, all of which are new Ford class super-carriers. Of the three, the keel of one has been laid, one has been cut, and the third is slated for production and expected in 2023.

Currently the largest carriers in the world, Nimitz class super-carriers have an approximate displacement of 102,000 tonnes, are propelled by two Westinghouse A4W nuclear reactors to four screws, can achieve over 30 knots, have an unlimited range, and carry a crew of 5,680, which includes air wing personnel. Each of them also carry between 85 and 90 aircraft. The next largest carrier in the world is currently the flagship of the Russian navy, the Admiral Kuznetsov – it being the only carrier in the Russian navy. The Varyag was supposed to be the second in its class, but construction on it was halted after the collapse of the Soviet Union. Its statistics are vastly inferior to that of the Nimitz class, as are those of France's Charles de Gaulle.

If you're wondering what the global breakdown looks like:

- United States: 11 carriers
- Russia: 1 carrier
- France: 1 carrier
- Italy: 2 carriers
- India: 1 carrier
- Brazil: 1 carrier
- Netherlands: 1 carrier
- Thailand: 1 carrier
- United Kingdom: 1 carrier

Besides being nowhere near in the same league as Nimitz class carriers, the US possesses two more active carriers than the rest of the world combined. Each of those carriers is the lead command vessel of a naval group, or CSG (carrier strike group). Each CSG consists of a carrier and its air wing, a minimum of one cruiser, a minimum of two destroyers/frigates and logistical support vessels. The inclusion of submarines is never officially listed, as to do so would admit their presence and therefore limit their capabilities.

A single US carrier strike group is, at present, the most powerful military asset in the world. In the case of the US navy, a CSG has the ability to deploy amphibious ready groups (marines/special forces); establish air supremacy in a given theatre of operation; operate in all weather conditions 24 hours a day (save those that pose a threat to the group's immediate security); are designed to be able to project power ashore to deal with a multitude of sophisticated land-based threats, such as missile defence systems; and, above all, can deploy theatre ballistic missiles that possess a range of between 300 to 3,500 kilometres (tactical-intercontinental). That aspect changes if the

group is accompanied by a ballistic submarine (SSBN), which has the ability to launch up to 24 Trident II's with a START-limited five MIRV's per missile, each of which can be configured to deliver W88s, which have a maximum yield of 475 kilotonnes – roughly 36 times more powerful per warhead than the bomb dropped on Hiroshima.

In short, a single CSG could – if fully unleashed – devastate most nations on earth.

If you're wondering if the Chinese have subs capable of launching nuclear weapons, the answer is yes. At present they are believed to possess at least one 094, which has the ability to launch an estimated 20 to 24 Type 3 JL-2 SLBM's. The Chinese are believed to be building two more 094s, with some claiming that more than one is now in service. Despite this, the Chinese government has yet to recklessly unleash the 094 on the west – surprise, surprise.

By comparison, the US has 18 Ohio class subs, 14 of which are Trident II SSBN's that are capable of carrying 24 SLBMs – each of which can, if unrestricted by treaties, deploy 12 independent warheads per missile at a maximum range of 12,000 kilometres. If fully laden, that's 288 nuclear warheads per boat, each possessing a maximum yield of 475 kilotonnes.

What an amazing technological age we live in. We can't feed the world, but by God we can blow it up.

Iranian Navy Sends Submarines To Red Sea

Associated Press, June 7, 2011

TEHRAN, Iran— Iran has sent submarines to the Red Sea in the first such deployment by the country's navy in distant waters, a semi-official news agency reported on Tuesday.

The deployment reflects Iran's efforts to show off its naval power. Iran has long sought to upgrade its air defense systems and navy to portray itself as a regional military superpower, as well as prepare for any possible future attacks against the country, saying they would most likely be air and sea-based.

The Fars news agency, which is close to Iranian military officials, said the submarines would collect data in international waters and identify warships of other countries.

The report quoted an unnamed government official as saying the submarines accompanied Iranian warships on an anti-piracy route in the Gulf of Aden before they moved into the Red Sea earlier this month. Fars gave no details on the number or capabilities of the submarines.

Iran has long had three Russian-made submarines and last year, four new small Iranian-built submarines were delivered to its navy.

The four were said to be Ghadir class submarines, which can fire missiles and torpedoes and at the same time are capable of cruising in shallow waters, such as those of the Persian Gulf off the Iranian coast.

Earlier this year, two Iranian warships shuttled in a naval visit to Syria. The move prompted an outcry by Israel, which considers Iran an existential threat because of its nuclear program, its calls for Israel's destruction and its support for the Palestinian Hamas and Lebanese Hezbollah militants.

Israel, the United States and others want to stop Iran from what they fear is a push by Tehran to develop nuclear weapons. So far the pressure on Iran has been mostly through international sanctions but both Israel and the U.S. have not ruled out a military strike if sanctions fail. Iran says its nuclear program aims only to produce electricity.

Report: Submarine Market Worth $16.4 Bn; Countries Modernizing Fleets

Business Wire, June 6, 2011

41 countries possess submarine capability and together operate 450 submarines
154 submarines to be procured up to 2021, costing US$186.3 billion.
The United States accounts for a large share of global submarine market.

LONDON—(BUSINESS WIRE)—Globally, the submarine market consists of 450 submarines operated by 41 countries. Some 154 submarines are to be procured up to 2021, costing a total of $186.3 billion. Most of the 41 nations are upgrading their fleets or adding to them as a result of rapidly changing defence requirements.

The Global Submarine Market 2011–2021

http://www.companiesandmarkets.com/Market-Report/the-global-submarine-market-2011-2021-612362.asp?prk=7c4ed5b510c1ffe12b50d9829eddaba2

The global market (annual value) stands at $16.4 billion and is set to increase to $18.2 billion by 2021. Regional hostility prevailing among Asian states is driving the submarine market, which is expected to cumulatively be worth US$44 billion across the forecast period, 23.6% of the total market. Brazil and Argentina are the main spenders in the submarine sector in Latin America, totaling US$8.6 billion, 4.61% of the total market.

In the long term, continued changes in the costs of construction and the increasing number of nations interested in nuclear powered submarines will push up the average cost of a submarine. It is estimated that, on average, a submarine costs just shy of $1 billion.

Highlights

SSNs are expected to have the largest share of the total submarine market during the forecast period

Market size of SSNs estimated at US$87.4 billion

Market for ballistic missile submarines to record a CAGR of 4.83%

Demand for diesel electric submarines expected to fall
Mature Air Independent Propulsion systems seen as a must have capability
Varying mission profiles demand multirole capability and multiple payloads
Defense budget cuts across the world impede the growth of the global submarine market
Detailed profiles of 20 leading submarine and related systems manufacturing companies across the world

This report offers detailed analysis of the global submarine market over the next ten years, and provides extensive market size forecasts by country and sub sector. It covers the key technological and market trends in the submarine market. It further lays out an analysis of the factors influencing the demand for submarines, and the challenges faced by industry participants.
Report Details: http://www.companiesandmarkets.com/Market-Report/the-global-submarine-market-2011-2021-612362.asp?prk=7c4ed5b510c1ffe12b50d9829eddaba2

Vietnam Confirms Kilo Sub Buy At Shangri-La

By Wendell Minnick, Defense News, June 5, 2011

SINGAPORE - Vietnam will procure six Russian-built Kilo-class attack submarines "to defend" the country. Vietnam's Defense Minister, Gen. Phung Quang Thanh, made the comment June 5 at the 10th Shangri-La Dialogue in Singapore 5. Analysts put the price tag for the deal at just over $3 billion.

The announcement comes in the wake of official protests lodged by Hanoi over a May 26 incident when three Chinese vessels operated by the State Oceanic Administration harassed the Binh Minh 02, a Vietnamese oil exploration seismic survey vessel belonging to the Vietnam Oil and Gas Group (PetroVietnam). One of the Chinese vessels cut the ship's survey cable. The incident occurred within Vietnam's Exclusive Economic Zone.

The incident causes "considerable concern on the maintenance of peace and stability in the East Sea [South China Sea]," he said. Further, Vietnam has "exercised patience in managing the incident with peaceful means in accordance with the international laws and the principle of determinedly protecting our national sovereignty."

The incident caused outrage in Vietnam, resulting in public protests at the Chinese embassy and hacker attacks on Chinese government websites.

Thanh met with Chinese Defense Minister Liang Guanglie at a bilateral meeting during the Shangri-La to discuss issues, including the incident. The Dialogue is organized by the London-based International Institute of Strategic Studies (IISS) and held annually each June in Singapore.

Lt. Gen. Nguyen Chi Vinh, Deputy Minister of Defense, also confirmed the Kilo submarine deal and added that Vietnam was also buying "Su-30 fighters and surface-to-air missiles." However, the procurements were not tied to the May 26 incident and were "part of our weapons appreciation program for enhancing our capabilities." He said Vietnam has a "legitimate need to upgrade our military capability."

Vinh emphasized that the recent incident with China was a "civilian clash" and not a military issue. Vietnamese law enforcement and maritime agencies are responsible for these types of problems, he said. "What happened, happened" and it must he handled within the guidelines of international law by peaceful means. However, Vinh stressed that Vietnam would use "all means to protect our national sovereignty."

China's military has been expanding its capabilities and influence in the South China Sea with a new submarine base on Hainan Island, and preparations are underway to begin sea trials of its first aircraft carrier.

China and Vietnam have been bumping into one another in the South China Sea since the 1970s. In 1974 China took the Paracel Islands by military force from then-South Vietnam, and Hanoi has continued to claim sovereignty over the islands. Periodic arrests of Vietnamese fishermen in the area have also caused frustration in Hanoi.

In 1988 China and Vietnam fought over the Johnson South Reef in the South China Sea. China sank two Vietnamese naval vessels and opened fired on Vietnamese troops occupying the reef. A video documentary widely aired in Vietnam, dubbed the "Spratly Islands Massacre," available on YouTube, allegedly shows a Chinese frigate gunning down around 30 Vietnamese soldiers on the reef.
The latest incident has raised concerns China is becoming aggressive in the South China Sea and risks sparking a conflict. However, a member of the Chinese delegation attending the Shangri-La Dialogue said the Chinese vessels involved in the May 26 incident might be acting unilaterally without the consent or encouragement of Beijing. The State Oceanic Administration and other non-military maritime patrol and law enforcement organizations have in the past acted carelessly, he said. These organizations are often fighting over budgets and attempting to justify their existence, thus they sometimes "act muscularly."

Accident Leaves Canada Without Operational Submarines

By Erin McCracken, Victoria News, June 6, 2011

Canada's only fully operational submarine hobbled back to CFB Esquimalt after hitting the ocean floor Saturday.

The accident means all four of Canada's subs are not in any shape to sail: HMCS Victoria is back in the water but is undergoing extensive testing, HMCS Windsor is undergoing repair and maintenance in Halifax, and HMCS Chicoutimi, which suffered a fatal fire in 2004, is at VIctoria Shipyards.

Officers on board the HMCS Corner Brook, which was alone deep in the waters of Nootka Sound off the central east coast of Vancouver Island, were being put through their paces during advanced submarine officer training.

The 12-day exercise, scheduled to wrap up Friday, abruptly ended around noon last Saturday following the grounding.

"They brought it to the surface right away, did some safety checks and after discussions they started heading home," said Gerry Pash, Canadian Navy spokesperson.

Two of the 60 sailors on board suffered minor bruising in the accident.

"It's like being in a car and you don't have your seat belt done up. It doesn't take much to get bumped," Pash explained.

Typically a sub carries up to 53 personnel, but HMCS Victoria personnel were on board for refresher training.

The boat arrived back at the base late Sunday night, and Monday morning navy divers entered the water to assess the damage to the sub's hull, said Pash, adding that no diesel fuel leaked out and no water leaked into the vessel.

Still, an investigation will follow.

"That's all going to part of the (military's) Board of Inquiry," Pash explained.

Corner Brook arrived from CFB Halifax in early May to help prepare Victoria personnel for their upcoming return to sea in the fall, before it was to begin an extensive maintenance period at Victoria Shipyards.

It's too soon to tell if Corner Brook will begin that session earlier than planned because of the accident.

"An assessment will be made, decisions will be made as to whether the damage can be repaired," Pash explained, adding that important questions now need answers: "Can she go back and do the training we wanted to do while she was still available to do it?"