

Attachment A

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Received

BIG WAR NO MORE?by **Joseph J. Buff, "TYPE=PICT;ALT=[IMAGE]" 2005**ARTICLE ORIGINALLY APPEARED AT MILITARY.COM, May 17, 2005

A trend I find very disturbing is an increasingly widespread perception or belief within our country that the United States will never again be forced to fight a major war. One sees more and more statements even from people I used to think of as hawks, to the effect that the 21st century will be an era only of counter-terror and counter-insurgency conflicts. The possibility that we could in the foreseeable future get stuck in a big, stand-up shooting war is being dismissed with blithe glibness as old fashioned and out of step.

There's a dangerous disconnect here, between this simplistic belief in "no more big war," and harsh reality. And the disconnect is widening, to the point that dreadful military planning mistakes might occur and become irreversible. Perhaps worst of all is that despite the recent condemnation of similar behavior by more than one independent investigational body, groupthink and doublespeak about crucial defense decisions appear to be as rampant as ever both inside and outside the Beltway. A simple illustration of the problem is the way in which the following two ideas are often written in the same paragraph, or spoken in the same breath:

1. America's military might is so overwhelmingly great that no nation would ever dare take us on in a head-to-head war.
2. Because our present military strength is such an effective deterrent, we can pare it away toward impotence -- through cuts whose main purpose is shrinking the national budget deficit.

While maybe sounding seductive at first, these two ideas are mutually contradictory, and put together the package undermines and negates itself.

The daily newspaper headlines scream about various threats to world order and safety which ought to suggest that the current downsized, over-stretched U.S. military is already losing some of its vaunted conventional deterrent power:

1. China is taking an increasingly hard line toward absorbing Taiwan. Ballistic missiles, cruise missiles, and other weapon systems and troops are being clustered near the strait separating the continent from the island, to the extent that American carrier strike groups and U.S. Air Force platforms could suffer serious losses if they tried to create a barrier to Chinese aggression. It's too easy to dismiss China's rising militarism as bluff. They have the intention and the means to field a world-class blue water navy themselves within a decade or two. The last time we ignored their warnings not to interfere in their "internal" matters, the result was a bloodbath when Chinese troops poured across the Yalu into North Korea.

2. Speaking of which, North Korea continues to show impressive skill at playing other countries against each other while remaining opaque to outside intelligence gathering. What we do know should be deeply troubling: The North has countless hardened artillery emplacements that could pulverize South Korea's capitol, Seoul, within a few hours -- another bloodbath. The withdrawal of American troops from within range of this massive artillery barrage amounts -- certainly in North Korean eyes -- to a concession that if fighting did break out, things would be very grim for the good guys. And after talking and talking, and yet more talking, North Korea is continuing to take steps to develop a nuclear arsenal. To think diplomacy and sanctions will somehow, suddenly make a breakthrough against this relentless opponent seems overly optimistic indeed.

3. Iran appears to be no more of an encouraging situation than North Korea. A different group of countries, mostly from Old Europe, have tried carrot-and-stick tactics to try to convince Teheran to dismantle their nuclear program. These tactics have not succeeded. Iran seems bent on starting up their uranium centrifuges again, regardless of all the blather and threats from the West. Claims that their desire for domestic supplies of uranium are solely for peaceful purposes defy credibility: Fuel rods for research and power reactors are available on the open market, at much less cost than duplicating the refining technology from scratch. With their substantial proven petroleum reserves, Iran ought to be one of the last countries worried about energy independence right now. Their bellicose message to Israel, "Don't try to pre-emptively attack us the way you did Iraq's reactor back in the early 1980s or you'll regret it," comes across to me like the voice of a guilty conscience, not an innocent, law-abiding global citizen.

4. Russia remains fixated on regaining superpower status. Vladimir Putin is not a nice man. His boasting about the Kremlin's next-generation ICBMs, some dozens of which are already operational, supposedly able to penetrate any conceivable missile shield, doesn't read like a message of peace. Continued meddling in the politics of now-sovereign nations on the Russian Federation's borders isn't very reassuring either. Even the recent war of words at the sixtieth anniversary of V-E day about the Soviet role (rule?) in the Baltic States should serve as a reminder that what happened once could still happen again. Some military commentators (including me) have stated that a Second Cold War with Russia may already be emerging.

We the People of the United States constantly forget how poorly we understand the cultures of other countries. Those countries know it, and they play to our wishful thinking by manipulating us, spending large sums on lobbying and advertising to reinforce our cherished but false myths. Is Japan really a democracy in the American mold, or is it a deeply racist and class-conscious command economy with a thin veneer left over from MacArthur's day? In a major op-ed piece in the NY Times recently, Nobel laureate Guenter Grass, a native German, seriously questioned whether re-united Germany was a true democracy -- he actually warned of the "risk of a new totalitarianism" in Germany! From regular correspondence with military-oriented e-pals in Canada, the UK, and the Republic of Ireland, I'm not sure how much the average American even "gets it" about values, perceptions, and politics in those countries.

History shows that tyrants will often begin wars of aggression that rational analysis would suggest they couldn't win. Either they were irrational people drunk on unquestioned authority, or their strategic goals had logic at the time to them (if not to us), or they thought they could gain more than they'd lose by rolling the dice of premeditated state violence and then trusting to luck. This peculiar behavior-set remains vividly active today. And remember, what should have been a fully effective non-nuclear deterrent force, America's latent industrial strength and huge manpower pool in the 1930s, failed to prevent World War II. Perhaps the deterrence was undermined by the enemy's shrewd reading of American propensities for pacifism and isolationism -- propensities which do not appear to have dwindled by much today. That the shrewd reading wasn't so shrewd in the end is beside the point: The war started, and we had to fight it to win.

History also shows that every major war, in its own way, was limited and asymmetrical: The enemy fights viciously, but refrains from certain types of fighting in certain places for what might be inscrutable reasons, muddling an accurate grasp of their objectives and motivations. Each combatant always plays to their strengths and attacks the opponent's weaknesses. Asymmetries can be psychological and emotional, too -- these are frequently the most telling differences of all, which lead to war after war breaking out that "didn't make any sense."

Even when the U.S. does achieve victory in a major war, the cost in money and lives is severe. Often, tens or hundreds of thousands of combat troops are killed, and many more are wounded in body and mind. The financial cost of fighting any big war, translated into 2005 dollars, can easily run into countless billions. The victory parade at the end of such a mess has to be the most expensive type of celebration known to humanity. Frankly, I don't look forward to getting an invitation to such a party in my old age. The answer is simple, but also extremely challenging -- and we sweep it under the rug at our collective peril: Threat assessment, intell gathering, warfighting doctrine, force structure, acquisition plans, ongoing training, and military "right-sizing" must all be premised on the genuine possibility that our next serious enemy will be a big one who won't flinch from slugging it out.

Attachment B:

ASW Silly Season

by Joseph J. Buff, 2005

ARTICLE ORIGINALLY APPEARED AT MILITARY.COM, June 1, 2005

A lot of you know that ASW stands for antisubmarine warfare. It's a complex art and science using multiple military platforms, connectivity, and other assets, whose mission is to render hostile submarines ineffective as threats to America, our global interests, and our allies. But there's a whole different sort of "anti-submarine warfare" being fought right now on dry land -- at the Pentagon, in Congress, around naval bases and shipyards, and in the media. The central themes of this battle, in which the enemy is definitely us, are:

1. How many subs does the U.S. require in the world of today and tomorrow? (Projected needs have ranged as high as 75 -- and that was before 9/11/01 -- while projected building and decommissioning schedules might leave us with less than half that number in being by 2030.)

2. What's the ideal force structure of these subs, in terms of the tradeoff between total numbers and individual ship capabilities on the one hand, and overall costs on the other?

These vexed questions, difficult to answer properly under the best of circumstances, seem to have recently become so politicized that I can't help labeling the current debate as a "silly season" -- a professional high-stakes blood sport of the type we're all used to watching unfold around major election campaigns. Indeed, a Two-Party System prevails: Among the activists engaged, one's either in favor of a large and powerful U.S. Navy submarine component, or one's not. (It's the "not" folks who put the "anti" in "anti-submarine," a bit of word play for which I accept full blame.)

Much as with the tone of the 2004 presidential race, hidden or biased assumptions, rhetoric instead of rationality, ignoring nuances or telling only half of a story, oversimplifications, myths, self-contradictions, and occasional errors abound and are (in my opinion) obscuring the path to choosing an ideal balance in the naval context. No segment of our various information-age outlets holds a monopoly on the fog of elucidation and confusion. Reports by committees and pronouncements by members of government, newspaper and magazine articles, blog and discussion board postings, books, even a controversial paid ad contribute to and subtract from clarity over the most essential task: somehow figuring out what our submarine fleet should look like.

If that isn't bad enough, further muddling things is that different timeframes apply at once. For instance, some commentators think our country might need to confront China's growing People's Liberation Army Navy in a new Cold War (or Hot War) at sea around 2020. Yet equally important is selecting the right answers in a big matter with a deadline looming as

close as this September: The BRAC decision on whether to close the Naval Submarine Base New London and the Portsmouth Naval Shipyard.

Don't get me wrong: Nobody's perfect, everyone means well in their own way, and an entirely thorough exposition of every angle and argument would fill an encyclopedia. Few folks have time or the attention span for that, and no media venue (except maybe for an encyclopedia publisher) has the word-count room. What can be achieved with relative speed, and economy of ink and pixels, is to give examples of this raging "homeland anti-submarine warfare campaign," in which there's an equally vocal pro-submarine side.

I'm the first to admit I hold strong opinions -- but I do try to be objective. I won't name names, or cite citations, because none of this is personal and Military.com essays don't use footnotes. My previous Military Opinion piece, "Why Subs Matter Now," was partly meant to set up this discussion. You may want to skim through it, since there I address and rebut some anti-submarine blather such as "Satellites and drones can do all the surveillance missions a sub can do," and the thinly veiled insinuation (with obvious implications) to the effect that "The secrecy which prevents confirming submarine special operations missions is a cover that such missions don't really exist."

With preliminaries out of the way -- and pun intended -- let's dive right in.

Risk management paradigm: Given an unstable world and uncertain future, it's important to start with proper analytical tools. Bear with me for a minute as I show you what I mean.

In strategic planning, for any endeavor, the natural instinct under pressure is to pick whichever environment you believe to be most likely, conducting your affairs as if that particular outcome is essentially guaranteed. But this isn't the right approach. Modern best practices for risk management, alas, require more work. "Pathwise immunization" is a technique employed by many risk analysts today, ranging from Wall Street trading-desk hedgers, to corporate executives, to think tank fellows studying foreign relations. Pathwise immunization involves developing a spectrum of scenarios which aren't merely the most probable, but which also extends to the broader envelope of the "not implausible." Then, these scenarios receive equal examination in seeing which ones could do the greatest damage. Lastly, policy is drawn up, and resources are allocated, to mitigate (immunize against) whichever scenario paths appear most dangerous. It's like buying insurance against catastrophes you hope never occur, but which you realize might occur.

Yes, this perspective can give you a headache. It requires thinking the unthinkable, and preparing for the worst. But it's a healthy mind-expanding exercise, and it's necessary. In the context of national defense, deciding on a single type of armed conflict (scenario) as the only one the U.S. will ever have to face (i.e., deeming it most probable, or even certain) violates the principles of risk management best practices. The point is that we don't know what type of conflict(s) we'll have to fight during the next generation or so. Counter-terror, counter-insurgency, cold wars, hot wars, quasi-wars, drug wars, nuclear wars, and then some, they're all on the table and none are "not implausible."

Tremendous flexibility in American military force structure is therefore required, not fixation on what's optimal for a single type of contest or disaster. Hitting power and staying power are as crucial as agility. Yet you'd never know it if you look at what's being said in some quarters both inside and outside the Beltway.

How many cold wars? A cherished belief for many is that there was and ever will be a single Cold War, the one we fought and won against the USSR. Allegedly, this victory, to which American submarines and submariners made a big contribution, has ironically rendered those undersea warships irrelevant. Some writers have put it more starkly, even appearing to me to be announcing that nuclear submarines are an endangered species, soon to be rightly extinct.

Let's leave aside the fact that the new Virginia-class fast-attack subs were conceived of, designed, put into production, and the first one already commissioned entirely during the post-Cold War period -- and the Virginias, as I discussed last week, are by no stretch of the informed imagination in the least bit irrelevant to the 21st century. Let's also ignore for now the USS Jimmy Carter modifications, the Ohio-class SSGN conversions, and the continuing need for strategic deterrent nuclear-powered "boomer" subs while weapons of mass destruction and their delivery systems proliferate.

Personally I think a better answer to the question of "how many cold wars ever possible" is: three. Yes. Not one, not two, but three. How come?

I've said this before and I'll say it again, and I'm hardly the only pundit who's said the same thing: The Russian Federation wants to regain superpower status, and has the proven natural gas and oil reserves to finance doing so. A Second Cold War with Russia might already be on, but some of us won't admit it. Journalist's interviews with senior Russian naval commanders and submarine design bureau chiefs indicate they have the talent, confidence, and will to reestablish a major presence on, and especially under, what they like to call the "World Ocean."

China, already alluded to, also has the means and the desire to invest in a blue-water navy. This effort will probably advance in fits and starts, as China's economy, ever more capitalist, experiences the boom-and-bust cycles common to every capitalist state. China intends for subs to form the backbone of this new navy. They're building or buying more and more such vessels, while forging friendships in far-reaching places where the U.S. is now unpopular. A Cold War might be coming on that front, too, even a shooting war. (Don't be fooled by the recent accidents aboard two Ming-class diesel boats -- those Foxtrots are old hunks of junk, in no way representative of China's emerging "New Fleet.")

If submarines do win cold wars, then we definitely still need submarines -- plus adequate, dispersed bases and yards to support and service both them and their crews. Endangered species, my you-know-what! The only driving factor within the U.S. that could extinct our nuclear subs is the self-fulfilling prophecy, and delusional circular reasoning, that announcing a foreseen requirement for very few of these vessels will somehow, as if by magic, make that

paper requirement come true in the actual world. Pacifist/isolationist types, and misguided spreadsheeting bean-counters, gotta love this anti-submarine drivel. God save us from the consequences if we as a nation fall for it. It takes five to eight years to build a nuclear sub -- much too long to recover in a crisis once we've ceded initiative and waterspace dominance to our adversaries.

If I haven't got your blood boiling yet, please read on.

Future submarine combat losses: Speaking of hidden assumptions, behind the more stingy among several proposed U.S. Navy submarine acquisition schemes appears to be the presumption that every such ship constructed will live out its normal hull life of some thirty or forty years. At least in the unclassified literature, no allowance has been made for potential losses in future combat -- which if shooting does start, against whomever in a decade or two, might be unavoidable and significant.

Remember, we did win World War II, but one-fifth of our submarine fleet (and our submariners) was lost in action.

Nuclear versus diesel power: This is a big topic unto itself, which I plan to address further in my next essay. For now I'll just say a few things -- and again I'm not the first person to say them. The UK until fairly recently maintained a fleet of both nuclear-powered and diesel-powered attack subs (SSNs and SSKs). Tight budget constraints demanded cutbacks. When given the choice, the Royal Navy took one SSN over four SSKs. The reasons for this were twofold: If rapid, stealthy global reach is required, nuclear powered submarines hold all the advantages over even the most modern diesel subs with air-independent propulsion (AIP). And once at the scene of battle, whether on the high seas or in the enemy's littorals, a properly handled SSN will usually prevail against opponent SSKs.

This ties in to something else, speaking of half-told stories in certain media. It's true that during 2002, in exercises in the Pacific against diesel subs from friendly countries, the U.S. Navy's experiences "often proved humbling." Diesel subs were able to "kill" Los Angeles-class SSNs more than once. Other diesels "sank" American aircraft carriers.

But the other half of the story, as stated publicly by senior U.S. submariners shortly thereafter, was that the American SSN skippers quickly realized their mistakes. They were using tactical doctrine more suited to an SSN-versus-SSN duel, which emphasized acting quickly and aggressively. If instead they adopted a strategy of patience, they found that they could out-wait the SSK, detect it, and reliably "destroy" it. Why?

Seems that a lurking SSN, with its nuclear reactor running in low-power silent mode, can stealthily keep electronics cooled and the crew atmosphere refreshed basically forever. The diesels, with a different arrangement of power sources and internal systems, were always eventually forced to run machinery that made noise -- to keep their computers and consoles from overheating, and their crews from starting to suffocate.

So much for the old idea that diesels running on batteries are quieter. There's a lot more to it

in undersea warfighting that simply spinning one's propulsion shaft with low decibels for a short while. It's also quite a misnomer to label all diesel subs as physically "small." Forget about whether smaller is better (maybe it is), and whether current U.S. nuclear sub designs are somehow "too big" (maybe they are). The vaunted Improved Kilo diesel sub, built in Russia and being sold to China in numbers, is fully as wide (about 32 feet) as our Los Angeles-class and Virginia-class SSNs, and is fully two-thirds as long as these ships, which are longer than a football field.

Mock-hostile diesels penetrating a carrier strike group's defenses and scoring hits doesn't surprise me -- American submariners call surface ships "targets." And if anything, it's another reason in favor of having numerous sophisticated SSNs -- to help guard our carriers and convoys against enemy SSNs and diesels that are underway on the high seas, while simultaneously trailing and interdicting those trying to sortie from port, or hiding in shallows. Such multi-layered defenses must be in place before conflict breaks out, or consequences will be deadly.

Cost or capability? Another anti-submarine argument is being made on the grounds that nuclear subs are so expensive. But for the U.S. Navy to start buying diesel subs just to save money, to me at least, isn't wise. Beginning to operate SSNs and SSKs at the same time would call for two separate but concurrent crew training programs, maintenance infrastructures, and logistical support pipelines. This alone has got to be a humongous "hidden expense." That Russia and China both still have mixed SSN/SSK fleets doesn't by itself validate the same idea for us. They do what they do in part because of asymmetric nautical geography with differing statesmanship goals, in part because they still lack the industrial strength to build large purely SSN fleets, and in part because their acquisition systems are plagued -- much like Nazi Germany's was -- by excessive internecine competition, absurd duplication, and staggering waste. (In comparison, they make the U.S. military-industrial complex look hyper-efficient!)

One defense expert was quoted as saying that, ton for ton, a supercarrier costs less than an SSN. Well, duh. It's a fundamental aspect of naval architecture that the price per ton of a ship as a whole declines as the size of the ship increases. Considering that, roundly speaking, a carrier weighs ten-plus times as much as one of our biggest fast-attack subs, this per-ton comparison shouldn't be news. In the whole defense budget contest, it's a red herring.

Another thing carped on by the anti-SSN "party" is that the Virginia-class subs -- the latest design, now gradually in production -- ran badly overbudget compared to original cost estimates. To that, I ask what major and revolutionary weapon system ever introduced in modern times didn't run badly overbudget? Again, it's just a red herring, i.e., not in and of itself a valid rationale to diss or ditch the Silent Service.

Which high/low mix? Some knowledgeable people have made the case that the U.S. Navy -- and the country -- needs a high/low mix of submarines, rather than the exclusive concentration we now have on the high end. With this, I humbly and enthusiastically agree. However, I disagree that the proper high/low mix is to field a blend of SSNs and diesel boats.

We already have a superb high/low mix in existence or in the development and acquisition process: an SSN parent host sub, deploying different types of smaller “adjuvant vehicles.” These run from manned SEAL minisubs to unmanned or autonomous undersea probes and airborne drones, some for recon only and some armed. My advice here is to stick with what we already have planned. A nuclear submarine, with its reactor, turbogenerators, and seawater electrolysis plant, can stealthily, while forward-deployed, recharge or refuel its adjuvant vehicles ad infinitum. Diesel/AIP subs can’t make that crucial claim.

Supercavitating weapons: The Russians have a series of underwater rockets, the Shkvals, fired from submerged submarines. These weapons, as they accelerate, create a vacuum bubble around their bodies (supercavitation), which cuts down water resistance to the point that their rocket engines can propel Shkvals at 200 or 300 knots. In comparison, American torpedoes have a maximum speed somewhere around 70 knots. Certain persons have used this to claim that our SSNs are obsolete because we have no defense against the Shkvals. Ho hum. Once again it’s a case of getting different things mixed up.

The older, and most common, variants of the Shkval are “straight runners.” Like most World War II torpedo designs, they lack any homing sensors. The sub launching such a Shkval needs a perfect firing solution, or it only wastes ammo. (Granted, the tremendous speed of the Shkval does make this aiming problem easier to solve.) That is, unless -- and here’s a vital point indeed -- the Shkval is equipped with a nuclear warhead, which given the large kill radius of an underwater nuclear bomb (10 miles for a 1 megaton warhead) means it doesn’t need huge accuracy. And that was precisely how early Shkvals worked -- as delivery platforms for H-bombs or A-bombs. Thus, while this isn’t exactly a “defense” against them, the fact that using such weapons crosses the nuclear threshold would presumably give a state-level adversary (like China or Russia) considerable pause. Were that barrier ever actually crossed, American subs could retaliate with nuclear-tipped torpedoes, smashing inbound Shkvals at what (one hopes) would be a safe stand-off distance. An even better answer to this threat, in extremis, might be to reintroduce the SUBROC -- a missile launched from a torpedo tube that flies very fast through the air but then drops a small torpedo or depth charge, which could be tactical nuclear.

Now, there is a newer version, the Shkval-E, which has on-board target homing sensors and a high-explosive warhead. It’s even available for export (think China again). There are just two problems with this. One is that the Shkval-E is a huge device, much too big to fit through the torpedo or missile tubes of any sub other than Russian nuclear classes that aren’t sold on the world arms market. The other is that the Shkval-E, to pursue an evading target (think American SSN), needs to repeatedly slow down to reacquire its intended victim’s signature -- the reason is that the rocket motors are utterly deafening to the rocket. When that Shkval reduces speed to listen for its prey with the usual passive and active sonars, it in turn becomes vulnerable to spoofing and decoying by conventional SSN countermeasures.

Commentators have said that a Shkval moves so fast that it doesn’t even need a warhead --

the weapon body alone can punch right through a carrier's hull. This problem doesn't apply to our SSNs, though, because a weakness of the Shkval is that it advertises its presence to the whole neighborhood the moment it's fired, and an SSN can maneuver in three dimensions quickly enough to avoid direct impact. (It's also another reason why American submariners like to call aircraft carriers targets.)

And in case you're wondering, yes, the U.S. Navy has for some time investigated supercavitating weapons. So far, a preferred approach is to keep improving the Improved Mark 48 ADCAP heavyweight long-range torpedo. The latest mod, I'm told, has such good on-board sonars and software, and such a wide-angle sensor search cone, that the old bugaboo about having the guidance wire broken isn't tactically important anymore.

Confusing today and tomorrow: A more insidious element of the anti-submarine rhetoric afoot is to make comparisons that muddle timeframes. An example is any discussion of why U.S. nuclear subs are or should be on the endangered-species list, which pits a hypothetical adversary's capabilities not due to be operational for ten or twenty-five years against American capabilities of today. I've heard such illogic used to argue that an affordable (read small) sub force is a loser, hence worthless, so we're better off having none -- a peculiar take on unilateral disarmament. This barely holds water even if the most radical ASW Party member's wildest fantasy came true: that U.S. Navy submarine technology development were immediately and forever frozen, with all pending acquisitions canceled at once.

But even the most miserly and skeptical senior leadership inside U.S. borders supports building further nuclear subs, plus adding more and increasingly potent adjuvant vehicles, working out ever-smarter battlefield tactics for all sorts of wars, and planning a superb next-generation SSN for beyond the Virginias. So don't compare China or Russia in 2025 with our own Silent Service in 2005 and think this tells you something meaningful -- other than that we can't afford not to spend more money on subs.

Conclusion: A large and capable nuclear submarine fleet, with adequately sized and strategically dispersed supporting base/yard infrastructure, will in the future remain as vital as it ever was to preserving freedom and America's way of life.

Attachment C:

Cracks in BRAC?

by Joseph J. Buff, 2005

ARTICLE ORIGINALLY APPEARED AT MILITARY.COM, July 20, 2005

Recent events suggest that the Pentagon's hopes to railroad through a monolithic, unchangeable Base Realignment and Closure (BRAC) list may be suddenly coming unglued. There's still a long way to go, and lots of challenging work for many folks to do, before America finds out for sure which existing military bases will be kept open, and which will be shut down. (I'll leave out details as to formal BRAC rules and other relevant dates, places, and names, because this can be found in Military.com's news archives, on Defense Tech and other blogs, and in the on-line archives of different newspapers.)

The BRAC list, that is the list of bases proposed to be downsized or closed, was promulgated by the Pentagon after a process shrouded in mystery. Some of the unclassified information used to decide which bases to shutter and which ones to save is being so stubbornly withheld that Senator Lieberman of Connecticut has had to go to great lengths to gain access to even a portion of it, at least once threatening to subpoena the Department of Defense. Separately, the Government Accountability Office (GAO), a sort of independent internal auditor of the U.S. Government itself, stated publicly that certain procedures, data, and assumptions used in preparing The List appeared incorrect or flawed, or might be insupportable. To me, this sure does sound like one heck of a lack of transparency!

The 2005 BRAC closing list was originally conceived (and/or perceived) as being essentially set in concrete. Pundits noted that in prior closing efforts of the late 1980s through the mid-1990s, virtually all of the original recommendations were approved as is. Hardly any bases were added to the lists in each round of closings, and very few were ever taken off. This led to an initial feeling of pessimism on the part of those who hoped to save some of the bases on the 2005 list. But that pessimism was quickly mobilized into productive and outspoken action on the part of all sorts of legislative and private-sector individuals and coalitions. Their focus? The BRAC Commission. If you haven't been following the story much, allow me to explain.

A crucial step, and considerable power, in finalizing The List rests in the hands of a group which is also showing commendable (and increasing?) skepticism. The BRAC Commission is a panel of nine persons, chaired by Anthony J. Principi, former Secretary of Veterans Affairs. According to the established 2005 BRAC process, the Commissioners by a vote of seven out of nine may add bases, and by a vote of five out of nine may subtract bases from The List. At this point it appears that Mr. Principi and other members of the Commission are asking hard questions that give hope to advocates of some threatened bases. They've also just given bad heartburn to supporters of several bases which were voted onto The List for the first time, at least tentatively, at a meeting on 19 July.

Every base closing has potential effects on multiple levels. These range from harm to the local economy (jobs) and loss of important historic sites, through to destruction of indispensable synergies with major defense contractors located very close to some bases. Other effects of base closings, such as environmental brownfield problems, include vast increases (possibly running to hundreds of billions of dollars) in types of costs which were downplayed or ignored by the Pentagon's cost-saving calculations. The broadest effect of all, of course, is BRAC's unfortunate creation of dangerous gaps in the entire fabric of national defense, homeland security, and military recruiting and training infrastructures. The Commissioners, in private meetings and public hearings all around the country, are realizing these things and have been sharply querying the basis of The List. The method and manner of their investigations imply (to me, at least) healthy contrarianism regarding how SECDEF Rumsfeld and his cohorts ever developed their base closure and realignment recommendations to begin with.

A few choice quotes might help to set the present tone. Mr. Principi has stated that his Commission's efforts are "not a rubber-stamp activity." Speaking after a recent tour of the Naval Submarine Base New London, Connecticut Governor M. Jodi Rell said "Having four commissioners here today was unprecedented." In contrast, a Pentagon official, possibly using Mr. Rumsfeld's own words, insisted that making even one alteration to The List could throw asunder the "comprehensive, integrated, and interdependent" balance of the whole.

Was the original BRAC List flawed? A series of juries, so to speak, will reach their verdicts soon, and each of us will have to live with the consequences forever; agreement seems to be widespread that most bases, once closed, can never be reopened.

What happens now? The BRAC Commissioners need to announce their finalized list, in late summer or early autumn. President Bush and Congress have says in the matter, too. But the ultimate judge, harshest, most unforgiving, and most objective of all, will be the outcome of future history -- favorable or unfavorable for America and our place in the world. So we damned well better get it right this year. Be very glad that the BRAC Commissioners are proving to be one hard-nosed bunch who won't take any guff or bluff, reject double-talk and fuzzed-up spreadsheets, and don't let anybody push them around.

Attachment D:

Littoral Sub Ops

by Joseph J. Buff, 2005

ARTICLE ORIGINALLY APPEARED AT MILITARY.COM, July 27, 2005

This newest essay on my favorite subject, the raging controversy over the future of America's Submarine Force, flows directly from a serendipitous sequence of recent events, large and small:

1. Friday, July 22, was the last day in office of Chief of Naval Operations (CNO) Admiral Vernon Clark, the longest-serving CNO in more than 40 years. His stepping down and retiring led to some pithy media reporting on the continuing debate over how many submarines are enough for America's "Incredible Shrinking Navy." An unnamed "top Navy officer," quoted in the Boston Globe that same day, made a claim about "the submariners' view of the world" which demands rebuttal on the record (see below).
2. I spent this past weekend in Groton, CT, mingling and brainstorming as I often do with a number of submariners, plus visiting USS Dallas (in floating dry dock ARDM 4) and USS Virginia (at her pier) and talking to folks in their crews.
3. A Veteran, in an e-mail just yesterday, asked what I could tell him about American submarine capabilities to operate inside the very shallow waters of the Taiwan Strait, which separates the island-nation of Taiwan from the mainland People's Republic of China -- a potential future flash-point for major war.

The question of China vs. Taiwan makes an interesting wrap-up "case study," to help illustrate some of the key points that will be established earlier in this essay.

Littoral Combat Ships: "Littoral" waters mean those which are shallow or near shore. Here I'm making a bit of a play on words. The Littoral Combat Ship (LCS) is a new type of surface naval vessel optimized for power-projection and warfighting in the littorals. The LCS is one of Vern Clark's great legacies to the United States Navy. But the fact of the matter is that every SSN (fast-attack sub), and the adaptations of four Ohio-class SSBN Trident missile subs to a new SSGN configuration (see "Steel Sharks, Giant Shadow"), are also littoral combat ships -- with the "lcs" in lower case. Nothing could have made this more vividly clear than my back-to-back tours of Dallas and Virginia on Saturday, at the Naval Submarine Base New London. (I'd been on Dallas several times before, since the late 1990s, but my visit to Virginia was for me a breathtaking first.)

USS Dallas, one of the earliest Los Angeles class SSNs, is fitted with an external Dry Deck Shelter. The DDS holds specialized equipment for supporting SEALs who deploy to and from hostile littorals, and who sometimes cross the surf zone for covert or direct action ashore. As a result, Dallas's operational tempo is high even by current grueling, over-stretched SSN standards.

Yet her people are eager to get out of dry dock and back to business ASAP. The 140-man crew's at-sea "lifestyle" and social structure have adapted admirably to typically carrying some 30 SEALs — she could in a pinch hold as many as 60. That's one heck of a crowd by any standard, with no physical or psychological privacy at all. But though your average SEAL and submariner might be quite different personalities, the two have a lot in common: They both know well the pressures and dangers of working underwater, while appreciating the "cover and concealment" that the ocean provides free of charge. And they both know where, when, why, and how to "shape" the littoral political and military environment, to best serve America's vital interests abroad.

USS Virginia, first in the class of SSNs now under construction, was designed from the keel up to do, using state-of-the-art naval architecture and 21st-century submarine technology, what Dallas has been modified and retrofitted to do using a Cold War-era platform first commissioned 25 years ago. Aside from much better quieting and improved non-acoustic stealth, Virginia's control room layout is revolutionary, permitting a whole new level of command-team situational awareness, along with pinpoint computer-autopilot control of ship's position and depth in the most complex and constrained imaginable underwater battlespaces. Virginia's torpedo room plus Tomahawk vertical launch system have a total weapons capacity nearly twice that of Dallas and other early LA-class boats. Yet Virginia's torpedo room can, reportedly, be reconfigured from ordnance-holding to commando-accommodation space in barely one hour. She can carry 40 or 50 commandos and all their equipment easily, with an ASDS minisub or Dry Deck Shelter transported on her back. She also sports a first-of-its-kind 9-man special operations diver lock-in/lock-out chamber, a major advance from the cramped escape trunks most SEALs who stage from subs had to use up to now. (Virginia retains the standard two escape trunks, enhancing survivability in case of a mishap in the littorals.) In addition, Virginia's four torpedo tubes have a diameter of 26.5 inches, contrasted to the standard 21-inch tubes for the Los Angeles class, permitting use of unmanned undersea vehicles (UUVs) as off-board probes of a size and sophistication that the LA class simply can't handle.

I have to label Dallas, Virginia, their sisters, the SSGNs, and USS Jimmy Carter (see "USS Jimmy Carter: SSN-23") — maybe even all the Seawolf boats -- as gen-u-ine littoral combat ships.

World views: On the face of it, submariners as a U.S. Navy "union" are probably the most aware, as a group, of the capabilities of other types of naval forces. For a "top Navy officer," presumably not a submariner, to say that "the submariners' view of the world" doesn't give proper credit to other platforms being able to fulfill similar missions is, as a not-for-attribution quote to a journalist, perhaps not surprising. Nor is it necessarily in the slightest bit ill-intentioned. But it is, as justification for an inadequate SSN fleet, quite incorrect. Submariners have a much better view (in every sense of the word) of the Surface Warfare and Naval Aviation arms ("unions") than vice versa. One reason for this is that submarines routinely operate in concert with carrier strike groups, Marine Corps amphibious warfare groups, cruiser-destroyer surface action groups, and other elements of the sea-going Navy. They do this in two complimentary manners: a) during live operations when all go in harm's way together, with the SSNs acting as stealthy escorts while in

frequent high-baud-rate contact with their surface and airborne companions, and b) during practice exercises when the escorting SSNs become instead the stealthy hunters. Both types of activities, escorting and hunting, are essential to the careers of all submariners, and are very educational as to the relative strengths and/or weaknesses of different platforms — including their own SSNs. There are, for instance, many more photographs (and amusing “sea stories”) in the public domain showing American aircraft carriers taken through the periscopes of American subs that the carriers didn’t even know were there, than there are photos of American submarine periscopes taken from carriers.

I’ll go even further in arguing that the availability and flow of information and understanding about different platforms, by its nature, asymmetrically favors submariners:

Sonar technicians, and all on-board users of their interpreted data (which means most everybody in the control room and torpedo room), continually detect, classify, track, and target contacts of all sorts: surface, airborne, or submerged. This process is vital not just for accomplishing combat missions. It’s indispensable in peacetime on a daily basis to know “who’s where, out there” and thus avoid potentially fatal collisions. (Several recent tragedies have reminded every submariner how much a matter of life and death accurate, real-time, three-dimensional situational awareness truly is.) Electronic support measures (ESM) signals intercepts, for self-defense and for intelligence gathering, are other tasks practiced in earnest constantly by SSN crews. The correct analysis of where all these overheard signals are coming from, and what they might mean as targets or threats, is an endless chore for submarine crews and embarked CIA or NSA experts. The SSN’s command team and supporting enlisted technicians must be sharply attuned to the distinguishing signatures, including sonar mechanical transients, during all possible behaviors and evolutions of different friendly, neutral, and hostile platforms. The sub’s people need a keen grasp of the unique characteristics of each such platform: hull shape and depth at the keel, weaponry including embarked aircraft (fixed wing and helos), anti-submarine sensors (including dipping sonars and towed arrays), maximum speed, on-scene endurance, degree of low-observability or ease of detection, handling and habitability in severe sea states, aggregate skipper-and-crew competence of individual vessels, and beyond. If anything, submariners know a lot more about the rest of the Navy than the other way around -- because of the unique environment within which submariners operate, their stealth, their mission flexibility, their instinctive tendency to constantly spy on anything within range, the unusual regimens needed to establish adequate connectivity, and their vulnerability to collisions if people get careless. They also comprehend more about our own Navy, because of their ability to get amazingly close to vessels and harbors of other navies.

I’m not done yet. Joint and/or combined assignments, plus commingling with other U.S. Navy unions’ members during periodic shore duty including continuing education -- as required to move up toward master chief, or be promoted to flag rank -- assure that senior decision-makers in the Submarine Force have an excellent view of the world around them. (Some submariner officers, once they make O-6, go on to “major command” of a deep-draft surface vessel, and in effect become part of the surface Navy themselves — achieving further enlightenment on how the other half lives.) And certainly, they are the leading authorities on the current and future

capabilities of their own subs, and other countries' subs. So when submariner admirals, both active-duty and retired, say publicly that 41 or fewer SSNs aren't nearly enough to assure America's superpower status and national security in coming decades, and the proper number is more like 54, we ought to give great weight to their concerns.

As to the parting shot sometimes heard nowadays, "Well, come on, military commanders of every ilk are always demanding more resources than they need," allow me to rebut by paraphrasing one admiral who spoke for the record at the Naval War College's June 2005 Current Strategy Forum: "Actual experience in major wars has shown repeatedly that resources of every type, ranging from bombs to landing craft to subs to planes, have always suffered from painfully inadequate supplies, not surpluses, during prolonged and bloody engagements against determined foes." Mahan, Not Interrupted: Alfred Thayer Mahan, a naval officer affiliated with the Naval War College in the late nineteenth and early twentieth centuries, is considered by many to be America's greatest thinker and writer on the subject of sea power, its purposes, and its applications in the real world. (See "Rear Adm. Mahan & Iraq" Part 1 and Part 2.) In recent years, he's often been misunderstood or misquoted, and then his basic theses are blithely dismissed — to our country's detriment. I've even heard talks or read things claiming that the existence of submarines renders Mahan irrelevant, or, a sort of obverse, that Mahan's teachings in a modern context make submarines irrelevant. I was unable to follow such logic, assuming there actually was any logic. Despite frequent misinterpretations to the contrary, Mahan's central tenet never was to advocate some sort of abstract "main battle-fleet fight to the death," where at the start of a war two enemy navies would steam toward each other in blue water and blast away until one side or the other got wiped out. What Mahan really did say was this:

1. The paramount purpose of sea power is to influence events on land.
2. A navy that will not risk casualties, i.e. won't actively seek combat in order to destroy the enemy's naval forces, is a war-loser, not a winner.
3. The best place to destroy an enemy's navy is not on the high seas, nor near your homeland's coast, but rather while the enemy fleet is still in or near its own ports and bases.

So, what Mahan was really getting at, 100 years ago, was that the way to win a war was through aggressive, proactive littoral-focused combat. A. T. Mahan was a pretty smart guy. His theories are as applicable as ever, and nuclear submarines are indeed rather relevant platforms to practice what he preached.

Subs in the Littorals — Taiwan Strait Case Study: The above discussion hopefully creates context, dispels misnomers, and leads into the broad and fascinating topic of modern submarine operations in the littorals. The specific types of missions an SSN might be tasked with were overviewed in "Why Subs Matter Now." What I will do next, here, for the first time in one of my Military.com essays, is provide an edited version of my e-mail response to the Veteran (non-submariner) who asked me if U.S. Navy submariners could operate in the Taiwan Strait. As I told him, I was cautious when formulating my response to avoid personal knowledge or inference that

might touch upon classified matters. With that preamble, here's what I said. Note the emphasis re ongoing Silent Service culture and training:

Firstly, 100 to 200 feet while relatively shallow is definitely within the operating envelope of U.S. Navy SSNs and has been for a long time. So-called "littoral" operations such as Indications and Warnings, SEAL deployment and recovery, minefield surveys, and Intelligence, Surveillance, & Reconnaissance (ISR) go back a long way and have occurred in some very shallow places. Submariners practice this all the time, it does require very tricky navigation, skilled ship-control handling (ballast and trim), and judicious use of active mine-avoidance sonars mounted under the chin of the Los Angeles class and more modern SSNs. Constant rehearsals while in pre-deployment work-up training in American waters, and a long tradition of aggressive risk-taking and a warrior mentality while penetrating "enemy" waters, are key elements of the Silent Service culture. The Naval Submarine Base New London's Submarine School and related facilities utilize impressively detailed trainers for each SSN class ship-control station, in which missions to hostile littorals can be simulated so that relevant watchstanders get it right before the SSN even leaves her pier. These trainers resemble the cockpit simulators used to teach and test aircraft flight crews, including the ability to pose multiple emergencies during full 3-D motion of the "ship" with an up or down angle as extreme as 45 degrees! The dangers of broaching, or hitting the bottom, can be replicated realistically. I've been strapped into the helmsman's seat on the Seawolf trainer and let me tell you it was one wild ride!!!

Without giving away too much, "battlespace dominance" against an identified threat such as China invading Taiwan begins long before any shooting ever starts, by the key task for SSNs of "waterspace preparation." This involves missions of the types listed above, into extremely shallow waters for prolonged periods, to study in great detail hydrography, map seabed wrecks, measure local acoustic propagation characteristics (which includes background noise from sources such as oil drilling/pumping platforms, coastal industrial activity, even heavy freight train movements!), also to quantify water transparency, find spots likely to make good enemy minefield locations before mines are ever laid, and using all these different parameters note possible ideal lurking places for enemy diesel subs before those subs have a chance to deploy. Signals intercept antennas are raised for long periods while at periscope depth to monitor and map enemy coastal defense sites, learn the location and organizational structure of various hostile units and headquarters, quantify characteristics of radars so that they can be most effectively spoofed and jammed in time of war, and so on.

Historically, it's public info that SSNs operated in such shallow and semi-enclosed areas of the World Ocean as the White Sea next to Russia's Kola Peninsula, the Persian Gulf (parts of which are exceedingly shallow), the Sea of Okhotsk (famous undersea phone cable tapping against USSR Pacific Fleet), and also near North Korea and Vietnam. Another example of ongoing SSN ops which is public info includes the fact that many SSNs transit from the Atlantic to the Pacific and back via the shortest and most covert route, the Arctic, which involves negotiating the Chukchi Sea and Bering Sea. Those two seas are extremely shallow (some areas for 100+ miles have a maximum depth of 150 feet) and are also somewhat confined (by Alaska and Siberia) and yet our SSNs go through, even when there is the further constraint of the ice cap (both summer

and winter) and the related danger of downward projecting ice keels (“bommocks”) that can create severe collision hazards. Again, practice and high skills at navigation, ship handling, teamwork, studied boldness, and use of obstacle warning sensors, is part of the daily life of an SSN crew.

Another tool for littoral warfare, introduced over the past few years, is the whole topic of remote-controlled off-board probes (unmanned undersea vehicles, or UUVs), which can be deployed and then recovered through torpedo tubes or SSGN modified missile tubes or Carter’s special Multi-Mission Platform added hull section’s ocean interface. These UUVs are designed with mission-reconfigurable passive and active sonar and imagery (photonics) sensor packages, for locating enemy mine hazards and other obstructions to safe passage. With these UUVs, an SSN can deploy expendable (i.e., unmanned) and super-stealthy mini-vehicles that can “scout” miles ahead of the parent sub, going anywhere short of grounding on a mud flat. This enhances the parent SSN’s ability to operate offensively in shallow waters. The ASDS minisub, BTW, at only 8 feet high on the outside, can penetrate remarkably close to any shoreline at high tide, and can serve as much more than merely a taxi for SEALs. The ASDS, though officially unarmed, could conceivably transport explosive ordnance other than commando ammunition, and/or could dwell under “hotel load” to run special intell-gathering or communications gear. The possibilities for these adjuvant vehicles are limited only by human imagination and audacity.

Putting all this together in the context of Taiwan, I think we may safely deduce that our SSNs already operate within the Strait, and its waters hold few remaining mysteries for our Submarine Sailors and their commanders. It is likely in the event of an emerging crisis that SSNs will be first on the scene and will be present to prosecute “sea denial” against amphibious invasion forces before those forces even marshal and leave their harbors. And remember that, aside from the superb Mark 48 Improved ADCAP torpedoes (which every submariner I’ve met says they’d choose over a 200-knot Shkval underwater rocket any day), SSNs are capable of launching Tomahawk missiles, which include (mostly in inventory, not deployed much last I knew) a very effective anti-ship version, with a range of 1000+ nautical miles. Thus SSNs can even “reach in” and destroy surface targets in the Taiwan Strait while remaining outside its confines, in a more stealthy (unpredictable) manner than surface platforms. And since the Strait itself is about 125 nautical miles wide at its narrowest (the distance Chinese landing craft would have to cover), and about 250 miles long (the length from north to south of Taiwan), this is a big play pen in which to operate. SSNs can plant ultra-smart mines, a so called “leave behind” weapon, to be armed if China really does try to invade.

Further, remember that our SSNs in time of war would be working directly or indirectly with support of land and sea-based surface and airborne or anti-air and anti-ship assets (American, Taiwanese, etc.), to deter or destroy Chinese ASW platforms (including subs) that might try to localize our SSNs and allied diesel subs in the Strait during any armed conflict. The “combined arms” element of undersea warfare, in the modern context of network-centric warfighting and advanced connectivity technologies, is a very important part of the bigger picture of the state of the art as practiced by the U.S. Navy. Is Taiwan a Red Herring? Personally, I think China does not intend to really invade Taiwan any time soon. They are mostly saber rattling, a favorite tactic

going back to Mao's day, for political, economic, and diplomatic gain. The powers-that-be in Beijing are pragmatic enough to not want to reduce to rubble the valuable infrastructure and assets of Taiwan merely to claim the smoldering debris pile as definitively sovereign Chinese soil -- and they know that any invasion attempt would be a mutual bloodbath which would leave Taiwan's cities and towns in ruins. The Chinese leadership is much too shrewd and subtle for that.

More of a worry is their aim to have a global-reach blue water Navy by the 2020s, including hundreds of subs, at just around the time that America's "Incredible Shrinking Navy" is likely to hit its nadir and bottom out irrecoverably. Then, they might take us on head-to-head, as Red China did in a different way in the latter part of the Korean War. Except now, China has hydrogen bombs and increasingly long-ranged ICBMs -- at a minimum, we'd be subjected to nuclear blackmail in every stage of any conventional conflict. Even if we eventually won, the price of such a victory appalls me. The much better answer, of course, is deterrence, and that means a) fixing the flaws in the Navy's 2004 Force Structure Assessment, and then b) building a stronger, balanced American Navy -- sooner rather than later.

Attachment E:

Save The Sub Base!

by Joseph J. Buff, 2005

ARTICLE ORIGINALLY APPEARED AT MILITARY.COM, June 28, 2005

Folks from all walks of life are deeply disturbed that the Naval Submarine Base New London in Groton, Connecticut was ever put on this year's very controversial BRAC closure list. And I don't blame them. Think about this. It's home to some eighteen nuclear subs. The base provides uniquely specialized waterfront support for all these indispensable modern capital ships, along with infrastructure for their parent squadrons' command headquarters. The historic base also hosts many vital installations related to submarine repair, crew training, various submarine/undersea medical research units, and signals intelligence and cyber-security.

The BRAC Report's main justification for closing the New London base is that existing submarine berthing space (piers and docks) on the East Coast is in excess of required capacity. The report also states that the reduction from three to two bases supporting U.S. Navy submarines on the Atlantic seaboard will maintain adequate force dispersal without affecting operational capability. Allow me to pick this "logic" to pieces.

Yes, America's Silent Service is barely half the size it once was. But that means it's badly overstretched, with too many global mission commitments due to hot-spots everywhere and new ones sprouting constantly. Slow submarine acquisition plans in meager current budgets only promise to make the national security problem of undersea surveillance and power projection more severe -- while the world grows ever more volatile and unstable. (Future small robotic probes will enhance but can never replace our full-size, manned nuclear subs.)

The Navy itself has stated that in essence every sub must act as a two-ocean warship, transiting between the Atlantic and Pacific (think China and North Korea) very rapidly in any crisis. The most covert route is also the shortest -- through the Arctic, north of Canada. Nothing can change this accident of geography. So, suppose New London wasn't available, her submarine squadrons moved to two more southerly East Coast bases as the BRAC Report proposed. A round trip from Atlantic to Pacific would be 1,000 miles longer from Norfolk, Virginia, and 2,000 miles longer from Kings Bay, Georgia. The added travel time and wear and tear, over a protracted period of high-tempo ops, become serious crew reenlistment, safety, and cost concerns. In event of a fleet surge in any fast-moving emergency, subs arriving on station a day or two later could turn out to be too late, impairing America's whole way of life. These same distance savings, and broader inescapable strategic issues, hold for trips "up north" to keep an eye on the now not-so-friendly Russian Federation. They hold for rapid deployments to the critical Eastern Med and Persian Gulf regions, too. One wonders whether the Washington bean counters, with all their talk of nimbleness, ever sat down and just looked at a globe.

It's been stated in the context of BRAC that the Amtrak and I-95 bridges over the Thames River, between the base and the Atlantic, make Groton too easily cut off from the sea by a terrorist strike. Yet these bridges have existed for decades. During the Cold War the threat of a Soviet Spetsnaz suicide attack to bring down part of a bridge would have been very real and probably more dangerous than anything 21st century terrorists might achieve. No one during the Cold War seriously suggested closing or relocating the base for this reason. Aside from the fact that Groton submariners are quite familiar with making the challenging navigational passage through the narrow gap in the Amtrak drawbridge, any blockage of the river could quickly be cleared by Navy divers and Seabees. General Dynamics Electric Boat, just downriver of the bridges, and already producing irreplaceable synergies with SUBASE Groton, would give ample backup during hurried recovery work. Furthermore, being well upriver and behind Long Island provides Groton with protection from some forms of assault by sea. In contrast, the heavy merchant-ship traffic into Chesapeake Bay, going right past Norfolk, exposes that other base to weapons of mass destruction (WMD) attack.

Even worse, with WMDs in play and continuing to proliferate, the idea of concentrating essential skills and installations in too few places defies common sense. Suppose New London is closed, and later on a terrorist or rogue does succeed in nuking Norfolk or Kings Bay, maybe with a warhead smuggled from those infamous poorly guarded stocks in Russia. Only a single Atlantic Coast submarine base would be left -- badly overtaxed, with some now-post-BRAC one of a kind shore facilities completely lost. How will new sub crews then be trained? How will essential research be performed? Where will subs that survive the attack, or were at sea during the attack, find a nearby port with the scarce special resources and equipment required to adequately support and rearm them? Imagine how exposed they'll be if they only have one possible refuge, rather than the pre-BRAC choice between two. If WMDs and terrorist attacks aren't enough to get your goat up, don't forget the constant potential for natural disasters. A category five hurricane might totally cream Kings Bay's or Norfolk's vital, non-portable shore facilities. An oceanic earthquake might trigger a disastrous tsunami. While we're reeling, a window opens for ruthless and opportunistic enemies to exploit our temporary vulnerability for their own irreversible gain. BRAC's supposed "excess berthing capacity" suddenly doesn't appear so expendable, does it?

Couldn't this last argument be applied equally to every installation on the closing list? Nope! Submarine bases must be on a coast, and aside from the three existing ones on the Atlantic, all the others are on the West Coast or in Hawaii or Guam, much too far away to give sufficient redundancy. As a last resort, military planes can use a civilian airport, and troops can live in tents. Nuclear submarines -- like very expensive high-performance sports cars -- are temperamental, needful beasts and don't possess these sorts of options. They and their crews must have New London.

Attachment F:

Why Subs Matter Now
by Joseph J. Buff, 2005

ARTICLE ORIGINALLY APPEARED AT MILITARY.COM, May 25, 2005

Submarines rank as true capital ships of the 21st century. They stand in the front line of American sea power, and will do so for decades to come. Whether in a peacekeeping or war fighting mode, they can take care of themselves and take on anything an enemy throws their way. They've evolved tremendously, with unique mission capabilities, since the first submersible warship was commissioned into the U.S. Navy over one hundred years ago. That pace of submarine technical and tactical innovation is, if anything, more fast-paced now than ever before in military history. And as tools for preserving our national security, we just can't live without them in robust numbers. (I'll come back to these central themes after a recap of the bigger picture.)

1. Eternal controversy, perpetual success: Naval submarines and their crews have always co-existed with a climate of nationwide controversy and debate as to their proper roles and even their relevance. But whenever the clarion call to arms was sounded, in a too-often complacent and unprepared America, talented improvisation by our submariners helped save the day. Repeatedly, during conflict after conflict, the new things that old subs could do held delightful surprises, and the infinite versatility of these platforms impressed all those in the know. Their lineage and utilization follow a twisted trail over the years, which itself forms interesting reading -- required reading to make informed decisions about acquisition planning today.

Walk along this trail with me and you'll see what I mean. A side lesson we'll learn is that trends in global warfare can't be managed like they're a business, and main events or changes -- discontinuities -- can't be predicted by spreadsheeting.

As commerce raiders in World War I, some people considered submariners too ungentlemanly, even calling them modern pirates. Yet in that very same role in World War II, sinking enemy merchant ships, American submarines gallantly led the charge to retake the western Pacific from Imperial Japan -- when our battleships still sat crippled or sunk in Pearl Harbor, and our aircraft carriers were initially badly overstretched.

For a while between the world wars, subs were thought of as surface-fleet escorts and scouts, or as harbor-defense vessels, depending on the at-sea endurance of the particular submarine class. Neither role really panned out at the time, yet nowadays no carrier strike group's commander would even think of steaming near a global conflict zone without one or several nuclear subs on his team. In the context of homeland security, when a terrorist or rogue sub might sneak near our shores by a shrewd exploitation of oceanographic conditions, severe weather, and other tricks, harbor defense isn't trivial. Funny how concepts that once seemed quaint can take on so much immediacy, isn't it?

American submarines in W.W.II were also desperately pressed into service as forward-deployed

radar pickets, giving early warning of approaching enemy planes -- especially the dreaded kamikazes. (Subs were a lot more survivable at this than destroyers, since they could dive after radioing an alarm; all the destroyers could do was get sunk.) Other subs covertly emplaced, supplied, and extracted what we'd now call special operations forces, in all theaters. This ranged from supporting coast watchers in the Pacific, to the Brits towing X-Craft and other minisubs in the battle against Nazi Germany. Subs sank enemy warships aplenty, too, including aircraft carriers and even surfaced submarines. Whenever requested, they saved downed aviators -- each man a priceless asset -- from Japanese-occupied islands or the cruel sea. George H. W. Bush probably owes his life to U.S. Navy submariners -- and indirectly so does his son, our current commander in chief. Dubya ought to reflect on that.

When World War II ended and led straight to the Cold War, submarine mission roles changed again, in ways undreamed of before, but they remained as necessary as ever to freedom and peace: At first the Silent Service soldiered on with diesel boats, either leftovers from the big shooting war, or "improved" derivative classes. Sonar science, and the importance of quieting, advanced in leaps and bounds. Nuclear weapons began to proliferate from the moment of their birth, and practical nuclear propulsion for submarines followed a decade thereafter. Nuclear-powered fast attacks (SSNs) revolutionized submarine ops, becoming the first-ever genuine "submarines" (as opposed to "submersibles") -- able to stay deeply submerged for prolonged periods. No more that risky daily snorkeling or surfacing to run the noisy diesel engines and recharge the flammable batteries! Genuine ongoing stealth had at last arrived. HOO-YAH.

When subs and early cruise missiles were wedded, new types of warship emerged, the SSG and SSGN. When nuclear-tipped ballistic missiles joined the show, the strategic deterrent strength of SSBNs came to the fore. Concurrently, homing torpedoes able to attack a submerged and evading target grew ever more effective and reliable. The best sub-hunters, instead of surface ships or aircraft, became other subs. That antisubmarine job took on huge urgency when a single enemy SSBN could (and still can) potentially wipe out a dozen -- later, with MIRVs, two hundred -- friendly cities and bases. Spying against the other side acquired new significance, and undersea superiority against our opponent's nuclear submarines became one key to democracy's and civilization's survival. The Cold War's psy-ops arena was one where the Silent Service played an absolutely indispensable part: Successful American crews messed with the minds of the Russkie submariners they trailed, and through them messed with the minds in the Kremlin. By amazing but classified feats of eavesdropping, they read those Kremlin minds as if they had ESP.

But despite prophecies to the contrary, nuclear weapons did not put an end to war. Conventional conflicts raged, and in these American SSNs contributed. As just one example, SEALs have said publicly that during Vietnam they sometimes worked in the sewers of Hanoi -- staging from U.S. Navy subs that our adversary never even suspected were there. Later, a single Royal Navy SSN, HMS Conqueror, by sinking an Argentine cruiser altered the nature and tone in the Falklands; an aggressor was punished, repulsed.

The Cold War ended. Peace seemed at hand. But it wasn't. Almost immediately after the Berlin Wall fell, Saddam Hussein invaded Kuwait. In the Gulf War that we and our allies fought to expel him, many of the Tomahawks used were fired from U.S. and Royal Navy subs -- their stealth cut down considerably on the enemy's warning that missiles were inbound. (During

Operation Iraqi Freedom, even more of the Tomahawks launched were fired from subs.) Willy-nilly, submariners found themselves doing work once reserved for surface Sailors: naval gunfire support, except with a reach some forty times as great as an extended-range sixteen-inch shell. All of a sudden, the men who wore the Dolphins were decisively influencing events from far out in deep water to well inside the enemy's coast. Who'd've thunk it?

In the multiple wars in the Balkans, SSNs played yet another new role: detecting and helping interdict high-speed surface boats acting as gun runners. The same skills apply in the War on Drugs. So, who were the "pirates" now? Seems a tad ironic.

Full circle, yet brand new: Some pundits have argued that at the end of the Cold War, nuclear submarines became "a solution in search of a problem." Submariners, it's even been said, were compelled to manufacture novel taskings merely to justify their own continued existence. And submarines, folks would claim, were museum pieces now, relics of an era and a geopolitical line-up fading rapidly into ancient history. Boy were they wrong.

Many present and future mission roles for the Silent Service trace back directly to things subs achieved in the past. These roles remain as essential now as they were in every prior war or peacekeeping period. If anything, with the 21st century turning out to be much more violent and unstable than expected -- and the spectrum of possible future armed conflict vastly broader than once seemed conceivable -- the missions and technologies of submarines move closer than ever to the lead-off hitter spot in preserving our way of life. (Re the clear and present danger of the major-war end of that spectrum, see my Archived "From Russia, Not Love", "The Undiscovered Country", and "Big War No More?".)

OK, enough context. Let's get down to business. Types of current and near-future submarine mission tasking include:

1. Continuing nuclear deterrence. Weapons of mass destruction proliferate -- and more countries acquire ballistic missile or cruise missile subs. See 2.
2. Indications-and-warnings against non-state terrorists, Third World pariah countries, and emerging or re-emerging rival superpowers. (Put al Qaeda, Hamas and Hezbollah, Iraqi insurgents, Syria, Iran, North Korea, China, and Russia on this multi-faceted list. Russia's Akula-IIs are very formidable SSNs -- her navy isn't down and out for the count, as some people think. In late-breaking news, Russian Navy C-in-C Admiral Vladimir Kuroyedov just announced that next year he'll put in service two modern SSBNs with brand new missiles, the Bulava-M. And China is hell-bent on acquiring a world-class blue water navy as soon as possible, including good nuclear subs.)
3. Signals interception intelligence gathering. Tapping of undersea fiber optic cables can only be done covertly via submarines -- but it can be done that way. In addition, because of peculiarities of radio propagation called surface ducting, a lurking sub can overhear message traffic to which airborne and satellite surveillance platforms may be deaf and blind. (This surface ducting phenomenon, usefully for us, is often prevalent near stubborn global hot-spots such as the Middle East and the Korean Peninsula.) The on-station dwell time of an SSN widely exceeds even that of an entire squadron of airborne drones -- plus the sub doesn't violate enemy airspace, while drones risk detection by eyeball and being shot down with their wreckage recovered, creating a rather embarrassing diplomatic incident.
4. Fleet escort

assignments. Carrier strike groups, and amphibious warfare strike groups, too, need dominant nuclear-powered undersea escorts, given state-of-the-art diesel subs with air-independent propulsion proliferating worldwide. 5. Commando infiltration and exfiltration. Shadow warriors need stealthy transport to and from their op area. In some cases, the ideal or only choice is to do this by submarine. 6. Conventional deterrence through stealthy power projection onto land. This mission is achieved by submarines being invisible but powerful long-endurance “platforms in being.” Their on-board weapons, Tactical Tomahawks, are fearsome things to know might be aimed your way. 7. Antisubmarine, anti-surface warship, and anti-commerce shipping intimidation or attack. The latest mod of Improved ADCAP Mark 48 torpedo, and American naval mines, are also fearsome weapons indeed. Deterrence (in item 6 too) morphs into warfighting quickly when “open fire” ROEs are received. 8. Minefield surveillance and other waterspace preparation for combined-arms endeavors. Special sonars, remote-controlled probes, and combat swimmers can locate, map, and disarm or destroy enemy mines, other physical obstacles to access, and hostile undersea sensors. This work is essential for friendly force-protection in any invasion -- and before an invasion might be required, it ensures the credibility of our deterrence threat.

New tools, new reach, new vitality: Another revolution in military affairs on the undersea front has resulted from a two-fold breakthrough in gadgetry. Some of this has to do with new (or replacement) classes of special-purpose submarines, and some of it pertains to “adjuvent vehicles” launched from any large-size sub. I’ll tackle the special purpose subs first. (I consider the class of highly advanced SSNs now in series production, the Virginias, to be the latest-generation fleet of fast attacks rather than special-purpose ships.)

1. USS Jimmy Carter. The third and final Seawolf-class vessel was modified with an extra hundred-foot-long hull section, devoted to classified and experimental equipment and techniques to help achieve the missions itemized in the previous section. This includes launch and retrieval of large-size remote-controlled or robotic unmanned undersea vehicles (see below), as well as extra space to transport and deploy special operations forces with all their equipment. (This modification in no way compromises Carter’s normal SSN availability.) 2. The Ohio-class SSGN conversions. The first four of the Trident ballistic missile subs are being altered to make different uses of their two-dozen very wide missile tubes. This includes putting into each tube a sleeve which can hold seven Tomahawks or other land-attack cruise missiles. Some tubes are also being tested and developed as “hangar space” for bigger adjuvent vehicles which can’t fit through a regular torpedo tube. The Ohio-class SSGNs are furthermore being modified to be able to carry a large number of special ops forces (up to one hundred men in an emergency) with all their equipment and ordnance. Each SSGN will be able to carry as an external load two pressure-proof dry deck shelters with undersea scooters or inflatable rafts, or two ASDS minisubs (see below), or one of each. 3. The ASDS minisub. Battery powered, this vehicle rides on the back of a host sub until it reaches the forward operating area. With eight to sixteen passengers, depending on how they’re equipped (plus a two-man minisub crew), the ASDS brings SEALs to the scene of intell-gathering or battle in a warm, dry shirtsleeves environment -- which greatly enhances their mission performance.

Being only eight feet high on the outside, the ASDS can penetrate into very shallow water, aka the enemy's littorals. 4. Off-board mine reconnaissance systems. This series of torpedo-tube launched, recoverable and reusable probes began with the Near-Term Mine Reconnaissance System (NMRS), to be replaced by the more flexible and capable BLQ-11 Long-Term Mine Reconnaissance System (LMRS). An improved version of the LMRS, the Mission-Reconfigurable LMRS, will be even more task-adaptable due to easily changeable plug-in module designs. These different unmanned or autonomous undersea vehicles (UUVs and AUVs) are controlled either by wire or fiber-optic link, or by radio or covert acoustic link. They can operate for many hours, up to one hundred miles away from the host sub, roundly speaking. Their sonars, cameras, and other sensors locate mines, hydrophone grids, other waterspace threats, and gather hydrographic data. 5. Unmanned aerial vehicles (UAVs) and unmanned combat aerial vehicles (UCAVs). SSNs have already demonstrated the ability to control airborne drones launched from a surface ship or a land base. UAVs and even UCAVs that submarines can launch by themselves are under development. This is particularly important in a threat-rich environment where surface ships are overly endangered, and no friendly land bases are within range. 6. Unmanned combat undersea vehicles (UCUVs). The manned ASDS minisub is unarmed. But the Navy and defense contractors are looking at concepts for an unmanned undersea vehicle equipped with weapons -- mines or small torpedoes, for instance. Were a parent SSN equipped with one or more UCUVs, it would be able to reach all the way to the enemy surf zone, and also engage a hostile diesel boat or wolf pack -- deterring or destroying it with maximum firepower and the lowest risk of counterattack. 7. Active anti-torpedo defenses. Several approaches are under investigation to allow a sub to directly attack an inbound torpedo. One method, which relies on an SSN's huge reserve of electrical power (thanks to its nuclear reactor), would use a pressure-pulse generator borne on the hull. A burst from this pulse generator would smash the torpedo at a safe stand-off distance. Another method is to "shoot down" the enemy torpedo with electromagnetic rail-gun darts. A Navy laboratory has succeeded in firing a metal dart at greater than the speed of sound in water (roughly one mile per second). An advantage of this is that the enemy can't tell the supersonic dart is coming until it's too late. A third approach is to use underwater rockets, proximity fused or command controlled to fire a "shotgun blast" of depleted uranium pellets to achieve a kinetic kill against the approaching weapon. While a great deal of money and R&D is needed before one of these systems is fielded, a new epoch is approaching in which an SSN, SSGN, or SSBN will have much more aggressive choices when it comes to defeating inbound torpedoes -- and then hunting down the vessel that fired them. (We should beware, however, that all military tech inevitably proliferates, and the same tools will eventually be available to our foes.)

Conclusion: It ought to be clear by now that evolution of submarine mission concepts and gadgetry go hand in hand; they always work best when they're needs-driven as opposed to cost-driven; and breakthroughs amounting to revolutions have been a recurring part of Silent Service history from the beginning -- and they still are today. Controversy and debate are nothing new, either, yet these versatile undersea warships remain indispensable. Anyone tempted to write an

obituary for America's nuclear submarine fleet is very premature and quite misguided.