Tamás Lesták✧

The Most Significant Technical Challenges for the US Naval Forces at the South China Sea

DOI 10.17047/HADTUD.2023.33.4.13

The United States of America's Naval Forces constantly prepare for operations against potential adversaries, most notably the military threat posed by the People's Republic of China. Chinese developments over the past decades have successfully reduced the technological and procedural gap compared with the US Navy in some areas, and in some cases they have already demonstrated certain advantages. In my study, I will examine the US response to these challenges in the recent past, with regard to the Navy and the Marine Corps.

KEYWORDS: USA, Navy, Marines, China, skills

Az Egyesült Államok Haditengerészete legfontosabb technikai kihívásai a Dél-kínai tengeren

Az Amerikai Egyesült Államok Haditengerészete folyamatos felkészülést folytat a lehetséges ellenfelek elleni műveletekre, ezek közül pedig kiemelkedik a Kínai Népköztársaság jelentette katonai fenyegetésre való felkészülés. Az utóbbi évtizedek kínai fejlesztései bizonyos részterületek esetén sikeresen csökkentették az eddigi technológiai és eljárásbeli lemaradást az Amerikai Haditengerészethez képest, néhány esetben pedig már előny is mutatkozik. Tanulmányomban az utóbbi időszak ezen kihívásaira adott amerikai válaszlépéseket vizsgálom, a Haditengerészet és a Tengerészgyalogság vonatkozásában.

KULCSSZAVAK: USA, haditengerészet, tengerészgyalogság, Kína, képességek

Introduction

The great power rivalry between the United States, the undisputed leader in conventional naval capabilities over the last half century, and the People's Republic of China, the most important challenger in recent history, takes many forms.

✧ University of Public Service Doctoral School of Military Science, PhD student – *Nemzeti Közszolgálati Egyetem, Hadtudományi Doktori Iskola, doktorandusz;*
E-mail: lestaktomi@hotmail.com; https://orcid.org/0000-0001-5919-9585

Undoubtedly, one of the most striking of these is the state and capabilities of the naval forces of the two military superpowers. Preparing for a potential conflict is a major mission for the naval forces of the opposing sides. To that end, new technical developments, capabilitiy announcements, and a presence on a scale not seen for decades in key regions, most notably the South China Sea, can be continuously observed. So far the preparations only manifested in operations of varying levels and intensities, highlighting some of the operational and technical challenges that the parties are likely to face with in a confrontation.

This study briefly describes and examines the challenges both the US Navy and the US Marines are facing, and explores what ideas exist to effectively address these challenges.

Growing Rivalry

Naturally, the turning of the US foreign policy and military leadership towards China is not a new phenomenon, but the issue is also reflected in a growing number of public documents and reports produced by think tanks and government agencies. One of the most recent of such reports is the Congressional Research Service's January 2022 update on the modernization of the People's Liberation Army Navy (PLAN) and its impact on the United States Navy (USN).[1]

In its introductory section the report states that the Chinese naval power poses a serious threat to US interests because it makes China the first actor in long decades able to prevent the US Navy from effectively controlling the so-called blue waters[2] of the Pacific in the event of a major war. While the most visible elements of the Chinese developments are undoubtedly the various asset procurement programmes, analysts believe that reforms in maintenance, logistics, and related naval doctrines are just as important.[3] These factors are the core background of real Chinese development in each of the sub-skills.[4] The document identifies the declared objectives of China's various development programmes as follows: establishing sufficient naval capabilities to successfully address the Taiwan issue; achieving an appropriate level of control or even dominance in maritime regions close to China; controlling and monitoring foreign military activity in the Exclusive Economic Zone (EEZ); protecting maritime trade communication routes, especially those between the Persian Gulf and China[5]; reducing the US military presence in the Western Pacific region; overall, to strengthen and recognise China's position as a major regional power and one of the new world powers.[6]

Against these ambitions the US Navy embarked on a comprehensive programme to counter China's capability upgrades and Beijing's modernisation efforts in general

1 Congressional Research Service 2022, 2.

2 A so called blue water navy is a naval force capable of operating globally, essentally across the deep waters of open oceans.

3 Defense Intelligence Agency 2019, 69–70.

4 Congressional Research Service 2022, 1.

5 Defense Intelligence Agency 2019, 28–29.

6 Congressional Research Service 2022, 4.

several years ago. The programme is a concept encompassing a broader set of technical, procurement, and doctrinal development steps, some of the most important of which are: permanent or longer-term deployment of the majority of the fleet in the Pacific regions concerned; deployment of the latest and most capable surface and subsurface vessel units to the region[7]; a tangible improvement of the Indo-Pacific alliance network; development of new types of vessels, unmanned vessels, aircraft carriers, and submarines in particular; a very important role will be given to new operational concepts aimed at countering and overcoming China's so-called A2/AD capabilities (the development of future joint operational profiles for the Navy and the Marine Corps is to be highlighted in this context); a new type of allocation of naval assets deployed and employed in the region (a smaller number of large vessel units, a larger number of smaller vessel units and more unmanned vessels).

The US Navy and Marine Corps face a number of challenges for future operations in the region, primarily stemming from recent modernization efforts by the Chinese side. All American capability development reflects on these, therefore it is important to briefly summarise what China has achieved in terms of naval force development in the recent past:

- according to the Congress document, China's naval force development has been going on for 25 years, with the result that the Chinese Navy (PLAN) is currently the strongest naval force in the maritime areas close to China, but is also increasingly often conducting operations in distant waters (e.g. in the Indian Ocean, waters around Europe)[8];
- by the time of writing of the report, the Chinese navy had outnumbered the US Navy, becoming the world leader in the number of ships. Moreover, the report also includes some projections, putting the expected number of Chinese naval units at around 420 by 2025 and 460 by 2030[9], with the bulk of the increase coming from larger surface units, according to the authors[10];
- the Chinese surface units have reached a much higher technical level by 2022 compared to that even a decade ago, according to the authors, the Chinese military leadership is placing a clear emphasis on qualitative improvement in addition to quantitative improvement[11];
- Chinese modernisation and procurement programmes have affected/are affecting several categories of weapons at the same time, since the development of anti-ship cruise missiles (ASCM), anti-ship ballistic missiles (ASBM), submarines, surface vessels, aircraft, unmanned aerial vehicles, and different support vehicles (with particular emphasis on logistics, maintenance tools, and related doctrines) has been/is ongoing in parallel[12];

7 Department of Defense 2006, 47.
8 Congressional Research Service 2022, 2.
9 Defense Intelligence Agency 2019, 63.
10 Congressional Research Service 2022, 2.
11 Congressional Research Service 2022, 2.
12 Congressional Research Service 2022, 2.

– the exact and final development goals and procurement figures (the number of units to be placed in service, the number of former units to be withdrawn from service) for the Chinese navy are not known, so the final goals to be achieved are not public either;
– the main objective of these developments is to ensure that in the event of an armed conflict the Chinese naval force can prevent US forces from intervening in the region (especially in the case of Taiwan) or at least effectively delay incoming US troop reinforcements;
– despite the above mentioned priorities and achievements, the report identifies a number of areas where Chinese naval forces are still lagging behind or need further improvement: joint operations with other forces, anti-submarine warfare (ASW), long distance precision strikes[13], logistics for long deployments in remote waters[14], ensuring that new vessels are adequately manned and equipped, lack of combat and operational experiences.[15]

Major technical and procedural challenges faced by the US Navy

Anti-ship ballistic missiles (ASBM)

This is one of the categories of weapons that has attracted the most professional attention in recent times. Two of its representatives will play an important role in China: both the DF-21D and DF-26 are land-based weapons with a range of 1,500 and 4,000 km respectively, and can be equipped with both conventional and nuclear warheads.[16] Until recently, these weapons were tested only against stationary targets, but in the second half of 2020 there were several reports of successful tests against moving maritime targets, which caused serious concern in US naval circles. US naval forces have never before faced anti-ship ballistic missiles capable of accurate strikes in any potential theatre of war, therefore if the ongoing Chinese developments are successfully completed, this could lead the US side to introduce completely new processes and new technical solutions.[17]

Anti-ship cruise missiles (ASCM)

Alongside the ASBM category, anti-ship cruise missiles are often somewhat overshadowed in the literature, but their more conventional design and deployment profile do not make this category any less of a potent threat to potential adversaires's surface units. The most prominent representative of these missiles is the YJ-18 weapon, whose long range makes it a real threat to US naval units operating in the region. Moreover, in the last two years, several reports came to light that China is

13 Sweeney 2020.
14 Noon, Bassler 2021.
15 Congressional Research Service 2022, 4–5.
16 Erickson 2020.
17 Congressional Research Service 2022, 10–11.

experimenting with the mounting of this type of weaponry on commercial container ships[18], which would represent a completely new kind of threat[19] in naval warfare.[20]

Submarines

The Chinese sub-surface fleet consists mainly of conventionally powered submarines (SS), with a small number of nuclear-powered attack submarines (SSN) and ballistic missile submarines (SSBN). The fleet has made significant technical progress compared to the previous period, but it still lags behind both Russian and American units in terms of technology. In the medium term, no significant change in the composition of the submarine fleet is predicted, but rather a slow, organic evolution. The threat is this case is more from deployable weapons, namely the anti-ship cruise missiles (ASCMs) discussed above, which can be deployed from several types of submarines. In addition, several types currently under development will in the near future have significant strike capability against land targets.[21] On top of all this, of course, the small number of nuclear ballistic missile submarines is the most serious strike force that the US command must constantly reckon with.[22]

Aircraft carriers

The two aircraft carriers currently in service with the Chinese Navy (Laioning Type 001 and Shandong Type 002) are conventional powered, ski-jump type aircraft carriers of an earlier technological level. Beijing's third carrier, currently designated as Type 003, is still under construction and development, and is expected to enter service in 2024.[23] This aircraft carrier, on the other hand, will be equipped with a launch catapult, which represents a much more advanced level of technology[24] and, of course, requires considerable experience and practice to operate. All this leads US analysts to conclude that China's carrier programmes and the underlying technological know-how are making significant progress. Foreign forecasts suggest that China would like to build and operate a fleet of 4-6 aircraft carriers in total.[25] Beyond the ultimate direct military objectives in the region, there may be technical and budgetary reasons for this: as an example, the document cites some 2019 reports of the suspension of the design and construction of the originally planned fifth unit (which would have been nuclear-powered). According to US and Western European analysts on the subject, China is not developing aircraft carriers primarily to achieve its short- or medium-term goals, as the primary potential adversary, Taiwan, is

18 Hollings 2019.
19 Pedrozo 2021, 1163–1164.
20 Congressional Research Service 2022, 12–14.
21 Chan 2021.
22 Congressional Research Service 2022, 15–17.
23 Joe 2020.
24 Office of Naval Intelligence 2020, 4.
25 Funaiole, Bermudez Jr. 2021.

located at a much closer geographical distance and a possible invasion can be executed by other means. Beijing prefers to use its carriers to reinforce its regional power status and to deploy them in more distant waters where they do not directly harm US interests, or come into direct contact with US naval forces. Nevertheless, in some scenarios, the US naval forces also expect the deployment of Chinese aircraft carriers, but these possible attacks would be aimed more at tying up US forces or diverting them from other theatres of war due to the Chinese technical and manpower shortfalls.[26]

Surface vessels

This is the area where most experts believe China has made the biggest progress, in a relatively short period of time. Moreover, the process is twofold, since, in addition to the very rapid pace of developing, building, and deploying new units, Beijing is also constantly upgrading its older types of ships, especially in terms of the weapons used.[27]

Over the last three decades, China developed several new classes (e.g. a new cruiser type), several destroyer and frigate types and a new corvette class. These developments, according to US experts, have led to a significant increase in Chinese anti-ship, anti-submarine and air defence capabilities. The main direction is now clearly to develop and implement new, in-house advancement. This is a major departure from the copying of Soviet/Russian and other foreign solutions of previous decades. In addition to the new indigenously developed units, China is continuously upgrading the older types still in service.[28]

The Type 055 cruiser (in some classifications a larger destroyer) outperforms the US Arleigh Burke class destroyer and the US Ticonderoga class cruisers as well in terms of water displacement.[29] According to the latest reports, at least eight units have been completed and two more are under construction.[30]

The Type 052 destroyers are a headache for the US command mainly because of their large numbers, as there are at least 39 of them in service or under construction with very similar design and capabilities to the American Aegis class.[31] This makes them a qualitatively high-level and highly available (in numbers) opponent for the US naval force, against which serious countermeasures must be prepared in the event of a conflict.[32]

The Type 056 corvettes represent the backbone of the new Chinese surface forces, as Beijing has been able to produce a significant number of them in a relatively short period of time. Between 2013 and 2021, an average of eight units per year were

26 Congressional Research Service 2022, 18–19.
27 Suciu 2020.
28 Congressional Research Service 2022, 24.
29 Kaushal 2020.
30 Congressional Research Service 2022, 25–26.
31 Osborn 2020.
32 Congressional Research Service 2022, 27.

completed, creating a total fleet of 72 units.[33] According to a statement from the Chinese government, the end of production of this category will allow the resources freed up to be allocated to the production of larger surface vessels.[34]

The first unit of the Type 075 amphibious assault ship entered service in 2021 and was followed by two more units by the beginning of this year. This class of vessel is a very important category for the execution of blue water maritime operations and is also essential in terms of power projection capabilities.[35] Although Beijing has not yet had significant assets and operational experience in this area, the development of this category means that the US military leadership must seriously consider this capability in the medium term. According to an interesting report from the military press, Beijing has also started developing a new class of amphibious landing craft since the summer of 2020, which would use an electromagnetic catapult to lift fixed-wing aircraft into the air, bringing them up to a similar level of performance as the conventional aircraft carriers.[36] According to some analysts, China is not developing these units primarily in preparation for a possible invasion attack on Taiwan, but rather to improve its broader naval capabilities for its own purposes and power projection capabilities.[37]

The Congress report also raises serious concerns about operations further afield from the territorial waters. In a famous statement in 2019, the then commander of the US Naval Forces in the region said that China had conducted more such long-range operations in the past 30 months than in the previous 30 years combined. These operations were quite mixed in nature, ranging from anti-piracy patrol missions to politically motivated curtesy visits to allied ports.[38]

Possible US responses

It is clear from the above that the US military leadership is most concerned about areas where Beijing can make a large quantitative leap or significant (even skipping several natural steps) technical improvement, especially when it can make both quantitative and qualitative progress in certain maritime sub-capabilities. To counteract these, the US Navy and Marines have taken a series of measures and actions in recent years, the most important of which are:

- the permanent or temporary transfer of an increasing proportion of the total deployable fleet to the Pacific Ocean;
- deploying the most capable ships and aircraft in the fleet, preferably with the most experienced personnel;
- general operational, training and development cooperation with allied naval forces in the region;

33 Xuanzun 2021.
34 Congressional Research Service 2022, 29.
35 Congressional Research Service 2022, 31.
36 Congressional Research Service 2022, 33.
37 Tadjdeh 2021.
38 Congressional Research Service 2022, 35.

– increasing the overall size of the Navy;
– accelerating programmes for the development of new vessels, aircraft and weapons by supporting the technical and financial background;
– developing new operational concepts and procedures to effectively counter and defeat advanced Chinese A2/AD forces (e.g. developing more integrated, common operational profiles for the Navy and the Marine Corps);
– a major reconfiguration of the naval forces deployed in the region: more smaller vessels and fewer larger vessels, and an increase in the proportion of different types of unmanned vessels.[39]

General operational, training, and development cooperation with allied naval forces in the region

Much closer cooperation with allies is a key element of US action in the region. At the bilateral level, the US-Japan, US-Australia and US-India relations are of particular importance. These relations are also taking shape at the trilateral level, and more recently, a significant alliance framework has been forming at the quadrilateral level (USA, Japan, Australia, India). The idea is that these alliances will make a fundamental contribution to increasing the credibility of deterrence against China, while also improving the security situation of the allied state concerned. This is accompanied with an administrative process by the Department of Defence, because, according to a report from 2021, the Biden administration established a dedicated military operation focused solely on China and related naval force development. This would allow for closer cooperation with allies and NATO and would also make the allocation of the necessary financial resources more efficient. The idea was put forward by the so-called China Task Force chaired by Ely Ratner, and submitted as a proposal to the Ministry. According to this idea, following a model already implemented by NATO in Europe, the allied countries would create a rapid reaction naval force, which can quickly respond to a crisis situation while in the area, but would also remain in the area at all times in the meantime[40], in a kind of patrolling role, by participating in allied exercises.[41] The Pacific response force to be established would also involve European states (most likely Great Britain and France), but its backbone would be the US and its local allies.

Ideal size of the Navy fleet

The Navy's current force level goal is 355 units, which was adopted in 2016.[42] However, developments in the meantime by potential adversaries and rivals (primarily China, of course) have necessitated the development of a new target, which has been under development at the Ministry since 2019. However, the new

39 Congressional Research Service 2022, 36–37.
40 Seligman 2021.
41 Congressional Research Service 2022, 37–38.
42 Congressional Research Service 2023, 2.

target is not just an increase in size, but rather a fundamental structural change.[43] The key elements are:

- reducing the proportion of larger vessels in the total fleet (this includes large aircraft carriers, cruisers, destroyers, large landing crafts);
- increasing the share of smaller vessels in the total fleet (including frigates, corvettes, small landing craft, helicopter carriers);
- the creation of a new, third pillar of the fleet, consisting of relatively large (corvette or larger patrol vessels) partly or entirely unmanned vessels.[44]

According to Navy and Department of Defence planners, this shift is driven by operational necessity (as it will allow to more effectively combat the massive Chinese array of A2/AD capable assets), is technologically possible (mainly due to recent developments, especially in the field of unmanned vehicles and network-centric warfare)[45], and it is financially feasible (as it is not expected to require more resources than maintaining the current fleet composition, and some analyses suggest that is is even cheaper).[46]

This approach was also reflected in the 2021 and 2022 defence budgets for the force, notably in the form of development of the Constellation-class frigates; the so-called Light Amphibious Warship programme; the programme to develop the next generation of medium-sized logistics vessels; and the development project of a variety of medium and large unmanned vessels.[47]

On 17th June 2021, the Navy's new long-term shipbuilding target numbers was released, reflecting the Biden administration's revised composition of the numbers as described above.[48] The number of manned units is to be increased from 321 to 372, while the number of unmanned units is to be increased from 77 to 140.

New operational concepts

To counter Chinese capabilities, new concepts of operations that track changes in potential adversaries's capabilities and combat procedures are key. To this end, both the Navy and the Marine Corps are developing new operational concepts, preferably as integrated as possible. The so-called Distributed Maritime Operations (DMO) document and the Marine Corps' related Expeditionary Advanced Base Operations (EABO) concept of operations are intented to fulfil this function. The documents rely to a much greater extent than before on the 'sister' force as a complementary force in operations and envisage more integrated naval and marine operations in general.[49]

The main objective of the concepts is to enable the Navy and the Marine Corps to effectively control key maritime trade routes and to maintain a high level of power

43 Congressional Research Service 2023, 2–3.
44 Congressional Research Service 2022, 38.
45 Larter 2019.
46 Congressional Research Service 2022, 38–39.
47 Congressional Research Service 2022, 39.
48 Office of the Secretary of the Navy 2022.
49 Lundquist 2021.

projection capabilities in the medium-term future. These documents also highlight the importance of the composition of the Navy to be deployed beyond a mere increase in quantity. So-called hypersonic and directed energy weapons and their integration into current capabilities are emerging as a particularly important area for technical development. The aim is to be able to conduct successful naval warfare against an opponent with an advanced level of technology and military culture. The DMO document specifically addresses operations against adversaries capable of serious resistance, examines the aggregate effects of naval and marine activities, and aims to increase information awareness among stakeholders. The main objectives of joint operations are, among other things, to enable own naval forces to achieve surprise in the theatre of war, to overwhelm the opponent's forces and to present the adversary with operational dilemmas that can slow down its decision-making process and ultimately reduce the effectiveness of its response. To achieve all of this, the report says, it is essential that the various sensors, weapon systems and platforms are fully networked in real time. This requires the right infrastructure, data management strategy and tools, because according to the concept, fast and stable communication will be the most important prerequisite in a future naval confrontation against a near-peer or peer-to-peer opponent. In recent decades, there has been a wealth of experience in communication and effective command and control against less advanced adversaries, however, a completely new approach is needed against an adversary like China.[50]

Another key element of the new DMO concept is the issue of logistics, and more specifically the possibilities of providing continuous logistical support in a high-intensity fight against an adversary with significant technical capabilities. Unmanned vehicles (both waterborne and airborne) have a major role to play in this area, but as this is a completely new field, a lot of conceptual and technical preparatory work is needed to create the conditions for this.[51]

Weapons

In addition to enhancing the combat effectiveness and overall readiness of existing strike weapons, priority will be given to the development of some new categories, namely to integrate hypersonic assets into the Navy and Marine Corps toolbox as quickly as possible, and to develop and field directed-energy weapons in the short term.

ASCM development programme: the development of longer-range weapons of the so-called ASCM category to counter Chinese capabilities has been the subject of serious criticism by the US naval command, especially with regard to the adequate progress and speed of these development programmes.[52] In a June 2021 report, the Navy therefore detailed the special measures that have been implemented in the so-called ASCM category. The document also identifies several possible procedures that could improve the survivability of US naval assets against Chinese ASBMs. These include hard kill capabilities (such as early detection and destruction of this type of

50 Lundquist 2021.

51 Ullman, 2023.

52 Turnwall 2019.

offensive missiles), as well as soft kill capabilities (such as effectively masking the exact location of fleet units and disrupting the re-entry of ASBM warheads). The goal is to create a list of potential counter-actions from a mix of these capabilities, which can be used to disrupt the entire kill chain, even in several stages simultaneously.

Tomahawk cruise missile: the naval version of the weapon, which is the backbone of the long-range, all-weather strike arsenal, is under continuous development. Achieving greater resilience to the weather conditions that affect deployment is currently the top development priority.[53]

Long range surface attack capability/long range anti-ship attack capability: the Air Force's B1-B Lancer and the Navy's F/A-18E/F Super Hornet aircraft will integrate the LRASM (Long Range Anti-ship Missile) into their inventory, allowing for the conduct of attacks against high-value, extremely important land targets of an adversary with a well-established integrated air defence system, as well as long-range attacks against surface vessels.[54]

Extended range anti-radar missile: the so-called AARGM-ER weapon is a 5th generation extended-range weapon designed to intercept and destroy enemy air-defences on both land and maritime targets. Around 1,000 of these weapons with new capabilities have already been fielded by the various armed forces, and continued procurement remains a priority, especially in light of Chinese capabilities.[55]

The Range Of Carrier Groups

Today, the issue of the operational range of the US aircraft carrier fleet groups is in the focus of one of the most serious professional debates, as the current ranges leave the Navy with two possible alternatives in the event of a conflict. Either they are deployed within the range of Chinese A2/AD assets, thus putting the carrier units themselves at very serious risk from a possible Chinese strike, or they operate well outside the range of these weapons. However, in this way, they reduce the combat effectiveness of the strike aircraft from the carriers to such an extent that the effectiveness of the whole operation is called into question. To address this, the Navy is running several parallel technical and operational development programmes. One of the most significant of these is the MQ-25 Stingray unmanned aerial refuelling aircraft, which has recently entered service with the fleet. Its main task is the aerial refuelling of aircraft that have taken off from carriers (and, secondarily, reconnaissance and surveillance), thus significantly increasing the range of the strike aircraft, eliminating at least some of the problems posed by the Chinese A2/AD threat. However, there are also views that the Navy should do more to tackle the problem, for example, by developing a low-observable, unmanned strike aircraft with the declared mission of penetrating the airspace of adversaries with established air defences.[56]

---

53 Congressional Research Service 2022, 43–44.

54 Congressional Research Service 2022, 44.

55 Congressional Research Service 2022, 44.

56 Congressional Research Service 2022, 44–45.

Assessment of the US response implemented

The document submitted to Congress also briefly discusses whether the US actions taken so far and planned for the near future are sufficient to counter the Chinese developments and capability increases described above. It also raises further questions about current and future steps:

- could the countering of Chinese capability increases and threats be effectively accomplished while at the same time other potential threats – by the Russian Federation and other likely asymmetric ones - may also occur to the US forces?
- whether the fleet size target numbers mentioned above are realistic, taking into account the already overstreched and highly concentrated US shipbuilding capacity, the nature of the specific know-how required, and the labour shortages affecting the sector concerned?
- what is the above mentioned timeframe within which this change in fleet composition can be achieved? Is any organisational resistance possible or opposition from the military lobby to be expected?
- in the development of the naval power, based on experience to date, additional resources and emphasis should be placed on certain priority areas, such as: effective countermeasures against Chinese ASBMs and new types of torpedos; development and introduction of new ASCM types with a longer range than Chinese types; increasing the operational range of naval aircraft carrier gorups to conduct operations outside the range of Chinese A2/AD assets; speeding up the process of various procurement programmes and the evaluation and commissioning process.[57]

The final part of the report provides an interesting insight into the technical debate about the extent to which and when Chinese naval forces will match the capabilities of the US Navy and Marine Corps in the disputed Pacific area, how urgent the countermeasures are, and where China's catching-up process actually stands.

According to some experts, China is already catching up in certain areas, and is some sub-skills and specific geographic regions the US has already lost its edge. In 2018, Admiral Philip Davidson of the US Pacific Command (PACOM) said[58] that China already has the capability to control the South China Sea in almost any future war scenario with the US.[59]

In January 2020, James Kraska of the Naval Academy claimed[60] no less than that the US had lost the edge across a broad spectrum of operations, from low-intensity capabilities (such as China's paramilitary naval militias) to high-end capabilities. This means that China has the so-called escalation dominance, as it has the power to deter any US escalation attempt.[61]

57 Congressional Research Service 2022, 40–41.

58 U.S. Pacific Command 2018.

59 Congressional Research Service 2022, 41.

60 Power 2020.

61 Congressional Research Service 2022, 41.

Moreover, a March 2021 press report concludes that China is expected to be able to forcefully change the status quo in its wider region by the middle of the decade. Although the majority of US naval leaders (e.g. retired Captain Carl Schuster) believe that China will not necessarily have the capabilities to clearly outmatch US forces in a potential conflict, for example, an invasion of Taiwan, but it will be strong enough to prevent effective and rapid US countermeasures, thus buying time in the conflict. The clear manifestations of this are that by now Chinese surface and subsurface vessels, complemented by naval bombers, have repeatedly demonstrated their ability to threaten US naval bases and airfields in the region in a 360 degree radius. In addition, the current construction rate of Chinese surface vessels is nearly five times that of the US. These new ships have almost the same capabilities as their US counterparts, but most of them are concentrated in a particular region, which could give China local superiority in a potential conflict.[62]

Of course, there are more cautious views on Chinese capabilities. Their main argument is that the above assessments do not give sufficient weight to areas and sub-skills where the US still has a comparative advantage. These include submarine warfare, the quality of naval training and the closely related personnel operational experience, joint operational capabilities with other forces, and the not insignificant allied support from strong partners, such as Japan and Australia.[63]

In addition to the above, the superiority of the US Navy in terms of numbers are to be highlighted as well: some 330,000 active duty personnel compared to China's approximately 250,000; the cruise missile strike capability of the surface ship units in the system (according to the IISS, the US has more than 9,000 vertical launchers deployed on the ships combined, compared to China's approximately 1,000); as well as the significant US advantage in terms of armament and range of the submarine fleet.[64]

Conclusions

The US naval forces regard the Chinese naval developments, equipment acquisitions, and overall increase in naval capabilities in recent decades as a serious challenge. On Beijing's side, there have been significant technical advances made in certain areas, particularly in the equipment and weapon systems used, so that in many cases there have been improvements not only in quantity but also in quality. To counter these, the US Navy and Marine Corps made significant changes for the event of a future naval conflict, in part by reconfiguring the composition of deployed surface and subsurface vessels, employing new combat procedures, and launching significant new weapons procurement and development programmes to counterbalance potential Chinese capabilities. Overall, US naval superiority still appears assured in the event of an armed conflict, but the degree of US countermeasures in itself is an indication of the extent of the improvement in Chinese naval capabilities.

62 Congressional Research Service 2022, 42.

63 Lendon 2021.

64 Congressional Research Service 2022, 42–43.

BIBLIOGRAPHY

Chan, Minnie. *China's new nuclear submarine missiles expand range in US: analysts.* South China Morning Post. China's new nuclear submarine missiles expand range in US: analysts | South China Morning Post (scmp.com) (Accessed on: 10. 07. 2023.)

Congressional Research Service 2022. *China naval modernization: Implications for U.S. Navy capabilities – Background and issues for Congress.* RL33153.pdf (fas.org) (Accessed on: 15. 06. 2023.)

Congressional Research Service 2023. *Navy Force Structure and shipbuilding plans: backgroung and issues for Congress.* RL32665.pdf (fas.org) (Accessed on: 22. 06. 2023.)

Defense Intelligence Agency*: China military power, modernizing a force to fight and win.* AD1066163.pdf (dtic.mil) (Accessed on: 15. 06. 2023.)

Department of Defense: *Quadrennial Defense Review Report.* https://history.defense.gov/Portals/70/Documents/quadrennial/QDR2006.pdf?ver =2014-06-25-111017-150 (Accessed on: 16. 06. 2023.)

Erickson, Andrew. *China's DF-21D and DF-26B ASBMs: Is the U.S. military ready? Real Clear Defense.* China's DF-21D and DF-26B ASBMs: Is the U.S. Military Ready? | RealClearDefense (Accessed on: 02. 07. 2023.)

Funaiole, Matthew P., Bermudez Jr., Joseph S. *Progress report on China's Type 003 carrier.* Center for Strategic and International Studies. Progress Report on China's Type 003 Carrier (csis.org) (Accessed on: 29. 06. 2023.)

Hollings, Alex. *China's new long-range cruise missiles are built to be fired from containers on merchant ships.* SOFREP Milutary Grade Content. China's new long-range cruise missiles are built to be fired from containers on merchant ships | SOFREP (Accessed on: 15. 06. 2023.)

Joe, Rick. 003 and more: *An update on China's aircraft carriers.* The Diplomat. 003 and More: An Update on China's Aircraft Carriers – The Diplomat (Accessed on: 17. 06. 2023.)

Kaushal, Dr. Sidharth. *The Type 055: A glimpse into the PLAN's developmental trajectory.* Royal United Services Institute. The Type 055: A Glimpse into the PLAN's Developmental Trajectory | Royal United Services Institute (rusi.org) (Accessed on: 22. 06. 2023.)

Larter, David B. *With China gunning for aircraft carriers, US Navy says it must change how it fights.* Defense News. With China gunning for aircraft carriers, US Navy says it must change how it fights (defensenews.com) (Accessed on: 23. 06. 2023.)

Lendon, Brad. *China has built the world's largest navy. Now what's Beijing going tod o with it?* CNN. China has built the world's largest navy. Now what's Beijing going to do with it? | CNN (Accessed on: 24. 06. 2023.)

Lundquist, Edward. *DMO is Navy's operational approach to winning the high-end fight at sea.* Seapower. DMO is Navy's Operational Approach to Winning the High-End Fight at Sea - Seapower (seapowermagazine.org) (Accessed on: 07. 04. 2023.)

Noon, Ben, Bassler, Chris. *Schrodinger's military? Challenges for China's military modernization ambitions.* War on the rocks. Schrodinger's Military? Challenges for China's Military Modernization Ambitions - War on the Rocks (Accessed on: (Accessed on: 14. 06. 2023.)

Office of Naval Intelligence, Farragut Technical Analysis Center Naval Platforms Department: *UPDATED China: Naval Construction Trends vis-à-vis U.S. Navy Shipbuilding Plans, 2020-2030* China: Naval Construction Trends vis-à-vis U.S. Navy Shipbuilding Plans, 2020-2030 (redacted) (fas.org) (Accessed on: (Accessed on: 12. 07. 2023.)

Office of the Secretary of the Navy: *Report to Congress on the Annual Long-Range Plan for construction of naval vessels for Fiscal Year 2023.* PB23 SHIPBUILDING PLAN 18 APR 2022 FINAL.PDF (defense.gov) (Accessed on: (Accessed on: 03. 07. 2023.)

Osborn, Kris. *Double the deastroyers: China will soon have almost 40 of these modern warships.* The National Interest. Double the Destroyers: China Will Soon Have Almost 40 of These Modern Warships | The National Interest (Accessed on: 22. 06. 2023.)

Pedrozo, Raul. 2021. *China's container missile deployments could violate the law of naval warfare.* International Law Studies 97 1161-1170

Power, John. *Has the US already lost the battle for the South China Sea?* South China Morning Post. Has the US already lost the battle for the South China Sea? | South China Morning Post (scmp.com) (Accessed on: 03. 07. 2023.)

Seligman, Lara. *Pentagon considering permanent naval task force to counter China in the Pacific.* Politico. Pentagon considering permanent naval task force to counter China in the Pacific - POLITICO (Accessed on: 03. 07. 2023.)

Suciu, Peter. *Chinese warships are now armed with supersonic anti-ship missiles.* The National Interest. Chinese Warships Are Now Armed with Supersonic Anti-Ship Missiles | The National Interest (Accessed on: 10. 07. 2023.)

Sweeney, Mike. *Assessing Chinese maritime power.* Defense Priorities. Assessing Chinese maritime power — Defense Priorities (Accessed on: 20. 06. 2023.)

Tadjdeh, Yasmin. *China building formidable amphibious fleet.* National Defense. China Building Formidable Amphibious Fleet (nationaldefensemagazine.org) (Accessed on: 02. 07. 2023.)

Turnwall, James. 2019. *The Navy is losing the missile arms race.* U.S. Naval Institute. The Navy Is Losing the Missile Arms Race | Proceedings - November 2019 Vol. 145/11/1,401 (usni.org) (Accessed on: 23. 06. 2023.)

Ullman, Harlan. *Are there flaws in the US Navy's distributed maritime operations?* Defense News. Are there flaws in the US Navy's distributed maritime operations? (defensenews.com) (Accessed on: 24. 06. 2023.)

U.S. Pacific Command: *Advance policy questions for Admiral Philip Davidson, USN expected nominee for Commander.* Davidson_APQs_04-17-18.pdf (senate.gov) (Accessed on: 23. 06. 2023.)

Xuanzun, Liu. *PLA Navy commissions final Type 056A corvettes specialised in coastal defense.* Global Times. PLA Navy commissions final Type 056A corvettes specialized in coastal defense - Global Times (Accessed on: 23. 06. 2023.)