



Building on Strength

Proposals for US-Norwegian Cooperation on the Operational and Tactical Level

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This paper suggests that the existing practice of deploying United States Marine Core (USMC) units from Marine Corps Prepositioning Program-Norway (MCPN) facilities in Trøndelag to other parts of Norway during crisis and war needs to be rethought. The operational- and tactical-level threats in this area are changing rapidly, and there is a high level of risk inherent in existing practice. We propose a concept based on the use of parts of the Norwegian offshore fleet for both operational and tactical transport and supply of the USMC.

REVITALIZING TRANSATLANTIC MARITIME SECURITY

The research project “Revitalizing Transatlantic Maritime Security: Filling Capability Gaps with the Norwegian Commercial Shipping Sector” intends to bring forward creative ideas on how to fill logistical gaps by leveraging private-public partnerships with merchant fleet operators. The project is a collaboration between Center for New American Security, Norwegian Institute of International Affairs and the Royal Norwegian Naval Academy. The project is funded by a research grant provided by the Norwegian Ministry of Defence.



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To Norway, the US Marine Corps Prepositioning Program in Norway (MCPN) represents an important manifestation of the nation's alliance with the US. It is a pillar of Norwegian defense policy. To the US, the MCPN is a forward base from which the USMC can support operations across Europe and beyond. The cost of the program is shared equally between Norway and the US. The MCPN is an example of a win-win solution in alliance cooperation.

According to the agreement on the MCPN from 2006, Norway is committed to provide logistic support for deployed USMC units: "the Government of the Kingdom of Norway shall make available adequate means to load, transport, and protect equipment of the MCPN from Central Norway to mutually agreed Norwegian sea or air ports of embarkation." This is relevant for all deployments, even if the destination is not within Norway. This commitment appears to have been satisfied, as demonstrated by many deployments to the Nordic region, the Baltic, and the Middle East.



*USMC Humvees stored in mountain cave in Frigård, Trøndelag.
Photo: Torbørn Korsvold*

But the agreement continues: "In the event the MCPN is used to reinforce Norway, the Government of the Kingdom of Norway shall make available adequate means to load, transport, and protect equipment of the MCPN, as well as receive, stage and move onward personnel and equipment to predesignated areas within Norway." In practice, this part of the agreement has been a "sleeping paragraph," i.e., not actually realized. No thorough concept has been exercised or tested on a large scale. Existing practice seem to be that USMC units are redeployed on US Navy ships.

In this paper, we argue that existing practice should be replaced by a concept based on assets

from the Norwegian merchant navy and offshore industry. There are several reasons for this. Our point of departure is that it is necessary to plan for a "worst case scenario." We also believe that we should train as we fight. If the obligation cited above is invoked in a crisis, yet there is no plan or concepts for how to implement it, the result will be suboptimal at best. We argue that a feasible and credible concept should be developed, tested, and exercised. In a high-intensity war, or in a situation where such a war may potentially occur, several problems with existing practice would become evident.

First, although we think it is unlikely that a major international crisis and/or war will break out between Russia and Norway, a scenario in which it occurs elsewhere and then escalates horizontally is far more likely. In other words, a war in the European high north will most likely result from a much larger, and perhaps global, confrontation. If so, then ships from the US Navy, the Military Sealift Command (MSC), or the US Maritime Administration (MARAD) will be needed elsewhere. If implemented, the proposals in this paper will free US capabilities for other theaters of war. Moreover, if this concept is tested and deemed credible, it may also be implemented elsewhere with American or Norwegian offshore assets.

Second, existing practice in exercises is to bring very large ro-ro ships into the northeastern part of the Norwegian Sea. The use of such large Ro-Ro ships in the Norwegian Sea in a heightened crisis or major war presents a very high risk. The concept below reduces that risk by distributing the equipment on a large number of smaller ships capable of using safer sailing routes. The so-called "Inner leads" is a sea route through the Norwegian littorals. The route is sheltered from the harsh weather conditions of the North Sea and Norwegian Sea. It is also, to a large extent, sheltered from the potentially substantial submarine threat in the Norwegian Sea. The Norwegian littorals are complex and hard to navigate. But by using ships and crews experienced in sailing them, a large advantage is gained.

Third, we believe that in a confrontation between Russia and NATO, Russia has few advantages. Among these advantages is the high readiness of Russia's forces, a sophisticated and highly mobile A2/AD capability/capacity, and the geographical distance between Russia and the likely theaters of operation. Russia cannot win a long war with NATO. To win, Russia would need to

strengthen its position by pushing forward, establishing a *faite accompli*, and calling for negotiations. When forward A2/AD positions are established, the cost for NATO to regain lost ground would be high. To handle, or to deter, such a scenario, NATO would need to be able to act very quickly. In Norway's case, this would require a substantial increase to both the size and readiness of Norwegian forces, but also an enhanced ability to bring in allied reinforcements rapidly and safely. The equipment stored in Norway represents a large percentage of what a USMC force would need to be able to fight. But not all. The remaining equipment is stored on maritime prepositioning ships of the MSC. These ships are organized in two squadrons. One is based on Guam, the other on Diego Garcia. Ships from Diego Garcia may reach Norway in around two weeks. If the Suez channel is open. If the ships have to go around Africa via the Cape Route, which would take approximately one month. If the MCPP-N arrangement is to be effective in war, such a solution is not very credible. The problem could be solved by storing similar equipment on the US East Coast. We suggest an arrangement whereby Norwegian merchant Ro-Ro ships transport the equipment to Europe in a crisis. We believe it is possible to have a large Norwegian Ro-Ro ship ready to load on the US East Coast within 24 hours, and several such ships within just a few days. This part of the concept could be part of a larger US-Norwegian agreement on strategic sealift.

Fourth, the agreement of 2006 states clearly that it is Norway's responsibility not only to transport USMC units, but also to protect them en route to their destination. The current long-term plan decided that most Norwegian coastal and littoral capabilities would be terminated by 2025. The Naval Home Guard is already dissolved. The coastal corvettes are to follow in 2025. The Coastal Rangers will lose all heavy organic weapon systems. The mine clearing force would lose all specialized vessels, while the number of submarines would be reduced by one-third. However, it was decided to make major investments in F-35 fighters (52) and P-8 Poseidon maritime patrol aircraft (5). In October 2019, The Norwegian Chief of Defense presented his advice for the next long-term plan. Even with an expected major increase in defense budgets, the reduction in coastal capabilities continues. In this vision, the Norwegian Navy will be much stronger in the open sea, but weaker in the littorals. As will be shown, this makes Norway's obligation from 2006 to protect the redeployment

of the USMC much harder to fulfill. This theme is controversial in Norway. We bring it up here as we strongly suspect that the choices are being made as a result of US influence, or at least as a result of what the Norwegians believe would please the US. A small state neighboring an assertive Great Power needs allies, and accordingly the alliance with the US is of fundamental importance to Norway. We believe that the US should have expectations of Norway. But we also believe, as did Admiral Arleigh Burke in 1960, that strong Norwegian control of the country's complex coastline is in the best interest of the US as well.



Troops from USMC 1st Recon Battalion and Norwegian Coastal Rangers exercising near Harstad in 2018.. Photo: Jacob Østheim

Background

During the Cold War, the Norwegian defense concept depended on the mobilization of some seven percent of the population. Less than 10 percent of the Norwegian population lives in the three northernmost counties, from south to north: Nordland, Troms, and Finnmark. If the Cold War turned hot, the Norwegians assumed that the Soviet Union's forces would cross the border in Finnmark and march through the relatively flat county. Several brigades from Southern Norway stored their equipment in Troms, the mountainous second-northernmost county, in order to facilitate a rapid increase in the forces there. The troops would be flown to airfields in the north to join up with their equipment. The distance between Troms and the more densely populated areas in the south was one reason for this arrangement. Another reason, as discussed below, is the particular challenges of Norwegian geography. In Troms, the Norwegians could make their stand. The Norwegian strategy was simply to hold until allied reinforcements arrived.

When Norway joined NATO as a founding member in 1949, the Norwegians had certain reservations. Hoping to avoid increased tension between the Soviet Union and NATO in the north, neither Norway nor Denmark wanted allied bases on their soil. Both recognized, however, that they would need allied reinforcements in war. One of the most important lessons from the campaign in Norway in 1940 was that allied reinforcements would have to come prepared to fight in the Norwegian topography and climate. Therefore, the Norwegians worked hard in NATO to convince allied states to participate in exercises in Norway and to earmark units for the reinforcement of Norway in war. Several allies, including the UK, Canada, and Germany, agreed to store equipment for earmarked forces in Norway. The agreements made with the US, though, were by far the most important.

Practical solutions pertaining to military cooperation between the US and Norway have often been worked out at the service level. During the Cold War, both the US Air Force and the US Navy had arrangements whereby fuel and ammunition for ships and aircraft were stored at Norwegian bases. The COB-agreement¹ between the USAF and Norway included nine prepared air bases for 170 combat aircraft. After successive cuts during the last few decades, the agreement now covers two air bases. The Invictus agreement is still in force, but it is reduced in scope. It covers support for US Navy ships, including carrier groups, and for maritime patrol aircraft from several air bases.

The most important agreement between the US and Norway on this level was made in its primary form in 1981. Originally named the "Norway Air Landed Marine Expeditionary Program (NALMEB)," this agreement was intended to provide prestored equipment for a full USMC brigade with 13,000 troops and a substantial air wing. Since it was assumed that in a war between NATO and the Soviet Union, the latter would use its substantial submarine fleet to disrupt transatlantic sea lines of communication, Norway needed to ensure that reinforcements would arrive quickly. That would only be possible if the requisite equipment was safely stored in Norway, and if troops could be brought in with aircraft.

Trøndelag, in mid-Norway, was chosen for two reasons. The first was about politics. The Norwegians did not want to provoke the Soviet Union by placing allied troops close to the border. The second reason was about security as a military

principle. It was important that the prestored equipment was located in an area that would not be overrun by the enemy in the first days of war. However, this solution had certain drawbacks.

Geography

Norway is known as a land of mountains. This is true, as less than one-third of the land lies below 300 meters above sea level, while more than 20 percent of the terrain is above 900 meters above sea level. But more than anything, Norway is a coastline. The coastline of the mainland measures 29,750 kilometers. But Norway also has 239,057 islands and islets and 81,192 rocks and reefs. When these are counted, the coastline stretches for 102,937 kilometers. The coastline of Nordland county alone measures 26,906 kilometers. It thus follows that this type of topography presents multiple ways to hide and is therefore difficult to control.



In naval theory, the possession of a strategic position may provide large advantages. In the maritime domain, a strategic position may provide access to the open ocean or increase the capacity to deny the enemy such access. After the First World War, German naval theorist Wolfgang Wegener wrote that if Germany had controlled Norway, the Royal Navy would not have been able to deny the German fleet access to the high seas. Twenty years

later, the Germans actually controlled Norway and used its strategic position to support the U-boat campaign in the Atlantic and to attack convoys in the Barents Sea.² To some extent, the present Russian position mirrors that of Germany in 1914 and 1939. Access by the Baltic and Black Sea fleets to the open sea may easily be blocked at chokepoints in the Bosphorus and Danish straits. The Northern fleet's position is better, but it is vulnerable in the gap between the North Cape in Norway and the Svalbard archipelago. Possession of parts of the Norwegian coastline would greatly enhance the strategic position of the Russian Navy. If so, then the vulnerability of all NATO states in Northwestern Europe would increase. The same would be true for the transatlantic sea lines of communication.

Perspective on the Littorals

Generally speaking, littorals are areas where the sea and land meet each other. There is, however, no single definition of the littoral area. In traditional military definitions, the littorals are areas where weapons from land can reach targets at sea and vice versa. Obviously, with the vastly increased reach of missiles, this definition loses all value as an analytical tool.

From an amphibious point of view, the littoral zone is a barrier that the landing force must cross to get from the sea to their objectives on land. Historically, landings on defended coastlines have been very bloody affairs. Therefore, amphibious forces like the USMC have developed operational concepts whereby the troops are brought to the vicinity of their objectives by large ships. From these ships, at least the first waves of troops are brought to land with helicopters or VTOL aircraft like the Osprey. Heavy material, like armored vehicles, still need to be brought ashore with smaller vessels, so-called "connectors." Alternatively, if the force controls a port, the ships may simply dock, and the material can roll off from the ship to the quay.

The Norwegian littorals are complex, with deep fjords surrounded by steep mountains. There are more than 300 000 islands, islets, reefs, and rocks. This makes radar far less efficient than in the open sea. It is difficult to find a small vessel hiding in the littorals. Even if such vessels are found, most anti-ship missiles, like the Harpoon, use active radar homing. Such missiles are seldom able to distinguish between a vessel and an islet. The littorals are different under water, too. Cold fresh

water from the mountains mixes with the warmer saltwater of the Gulf Stream. This creates layers in the sea with different temperatures and salinity, which poses a challenge to sonar. Complicating matters further is that submariners who know their way around these waters are very difficult to find. Anti-submarine warfare (ASW) in these littorals is very different from that in the open sea.



USS Iwo Jima (LHD-7) and RNoN Storm in exercise Trident Juncture 2018. Photo: Bendik Storli.

Therefore, a small ship or submarine hiding in the littorals may, if it has the proper target data and its missiles have adequate range, hit and destroy a ship in the open sea. Open sea ships will struggle to find the hiding vessel, and their missiles will rarely be effective. This means that the littorals may be used as a force multiplier that allows small and relatively simple combatants to defeat more powerful opponents. However, operations in the littorals are difficult and extremely risky. Operational crews must have the requisite knowledge and experience to navigate there. Sufficient training and exercises are thus crucial.

Since the establishment of the Royal Norwegian Navy in 1814, there has been a more or less constant debate on whether the navy should prioritize the high seas or the littorals. In some periods, the Norwegians invested heavily in a few large ocean-going ships, while other periods were dominated by the procurement of large numbers of coastal craft. During the Cold War, the burden-sharing arrangements between the US Navy and its allies, both in Europe and Asia, allowed the US Navy to focus mainly on the high seas, as the allies designed their navies to be able to handle tasks closer to shore. After the Second World War, the Norwegian Navy had many frigates and destroyers that had operated integrated with the Royal Navy

during the war. As these ships grew old and the Russian Northern Fleet grew in strength during the Cold War, Norway and the US worked out a plan for a new Norwegian Navy, which would comprise a force with almost 50 fast-attack craft, 15 small submarines, and a handful of small frigates for coastal escort tasks. The Coastal Artillery, with some 40 fortresses with heavy guns, torpedoes, and minefields, was part of that navy. This littoral navy was created with substantial and generous US financial support. It would not have been realized without the full support of the US Navy's Chief of Naval Operations, Admiral Arleigh Burke.³ Presumably, Admiral Burke, with his experience from World War II and the Korean War, understood the importance of strategic positions. Such a coastal force would be able to stop amphibious landings in Norway, but it would also deny the powerful Soviet Navy the advantage of operating from the Norwegian coast against Western Europe and the Atlantic.



Narrow waters. Skjold-class coastal corvette RNoN Skudd in Northern Norway 2016. Photo: Johan Ludvig Holst.

The Opposing Forces

The Norwegian Navy has a small littoral force with six corvettes, six submarines, four mine-clearing vessels, and a company-sized coastal ranger unit. The ocean-going fleet consists of one oiler/logistic replenishment ship and four frigates. Present plans call for an increase in the number of frigates, much larger submarines, and a reduction of the littoral force. In other words, the Norwegian Navy will be stronger in the open sea and weaker in the littorals. As for Russia, the following changes have occurred:

- The Northern Fleet is now the core of the Russian Arctic Joint Command, in practice a fifth military district. It is the only joint

command led by an admiral. Obviously, the Russians view the Arctic as a maritime theater of operations.

- An increase in Russia's potential to use hybrid tactics to disrupt, delay, and possibly deny activity in the waters around Norway. This includes jamming, sabotage, and the use of civilian shipping for irregular activities, such as mine-laying.
- An increase in Russia's ability for denial in the air and at sea as air defense and coastal defense units are modernized and expanded. Land-based systems are highly mobile and may be moved by air and by sea to forward strategic positions to deny an opponent access to a large area.
- The ground forces of the Arctic Command remain relatively few. But all brigades exercise amphibious operations.
- An expected increase in the number of conventional submarines (diesel and possibly AIP) in the Northern Fleet within the next few years. If so, we can expect the Russian ability for denial in the open ocean close to Norway to increase as well.
- An expected change in the order of battle of the Russian Northern Fleet, one which will result in a relatively weaker blue-water Navy, but a strengthened green- and brown-water force. If so, we can expect a Russian attempt to utilize the Norwegian littorals as a force multiplier for their coastal fleet.

Presently, the Norwegians are getting stronger at sea but weaker in the littorals, while the Russian fleet is going in the opposite direction.

Deployment to the North

The challenge at hand is to bring USMC units safely from the Trøndelag area, where their equipment is stored, to Northern Norway. Northern Norland and Troms are presumably the most relevant regions. The MCPP-N arrangement is not meant to be exclusively for the reinforcement of Norway. Our proposals are meant to make a deployment from Trøndelag safer and more secure. But the concepts presented here could also be used elsewhere. In terms of value, the Norwegian offshore fleet is only matched by that of the Americans. If the concepts presented here actually work in Norwegian conditions, they are likely to work anywhere.

We propose using part of the Norwegian offshore fleet to transport and supply units from the USMC operating in Norway. In war, Norwegian law allows the state to requisition all the assets it wants. We do not, however, recommend such a practice. If the proposed concept is to work, it requires the full cooperation of shipowners and their crews. It will require testing, exercising, and training as well as the preparation of some equipment for the ships in peacetime if the concept is to work in war. Therefore, cooperation between the Norwegian state and shipowners would have to be based on contracts. The state and the shipowners would have to agree on when to run exercises so that they do not conflict with attractive business opportunities for the latter. The shipowners and their crews would have to accept a vetting process that approves the members of the crew for security clearance. Perhaps some kind of reserve arrangement could be established, whereby companies would be compensated for extra costs if a certain percentage of the crew were part of a reserve force? Such issues need to be negotiated. Our main concern here is to outline a concept that may be advantageous on the operational and tactical level.

Presently, the MCPP-N arrangement includes prestored equipment for an infantry battalion task force, a combat logistics battalion, and a composite aviation squadron. The total number of personnel supported is in the 3000–5000 range. This represents a force a bit larger than

a normal Marine Expeditionary Unit, which is the smallest air–ground task force (MAGTF) in the USMC. However, the number of stored howitzers and tanks is larger than in a normal MEU.⁴ The number of Humvees is much larger. There are no aircraft or helicopters stored, although the heavy equipment needed for the support of aviation operations is. While the MEU is deployed on amphibious assault ships, the personnel of the MCPP-N force will be flown to Norway and join up with the prestored equipment.⁵

Any transport from Southern Norway to Northern Norway may choose between air, sea, and land routes—or a combination of these. In war, as well as in a heightened crisis in which hybrid methods are used against Norway, each of these routes faces different threats. In a pre-war scenario, all the routes may be used. However, in a crisis with heightened tensions, one should expect diverse “hybrid” activities that may disrupt and delay the deployment. In a shooting war, any deployment will face multiple threats.

If Swedish territory is included, there are several land routes. There is only one option if the transport uses exclusively Norwegian territory, European route 6, or E-6. From Trøndelag to Eastern Finnmark, E-6 stretches 1646 kilometers. Through Nordland county alone, it measures 632 kilometers. The route is very vulnerable, with ferries, numerous tunnels, and bridges. Many stretches of road are exposed to mudslides, rockslides, or avalanches. One does not need a



USS Harry S. Truman (CVN-75) and Skjold class coastal corvette in Northern Norway 2018. Photo: Norwegian Armed Forces.

particularly vivid imagination to design an effective sabotage that will disrupt and delay a large force moving northward.

There are many airfields in Northern Norway. Transport of heavy military equipment depends on the availability of heavy lift aircraft. Norway does not have such aircraft. Presumably, in a serious international crisis, USAF capability will be needed to support a range of operations. All the northern airfields are well within range of different Russian missile systems. There is no area air defense, and only very limited point defense, capability in the Norwegian armed forces. There is reason to believe, however, that such capabilities will be procured in the near future.⁶ Nevertheless, due to the strong increase in Russian long-range precision strike capabilities, it is unlikely that Norway will be able to guarantee full availability for these airfields in war. For the same reason, Norwegian and allied forces cannot count on full air superiority all the time.

At sea, there are two very different routes, one in the open sea and another through the leads. The latter is the littoral route, protected from the weather by islands. In the open sea, transport ships will, generally, be safe from mines. However, the ships will be more exposed to threats from submarines and aircraft as well as from surface vessels. The Russian Northern Fleet's strongest card is its submarine fleet. At the Royal Norwegian Naval Academy, we expect the Northern Fleet to increase the number of diesel-electric submarines, perhaps with AIP, within the next few years.⁷

The leads are much better suited for mine warfare, provided that the mines are covertly deployed. This may be done by aircraft and submarines, but also by civilian ships. It is possible to threaten shipping in the leads directly with submarines, but the risk for the submarines is considerably greater than it is in the open sea.

Recent practice is for the USMC to deploy northward from Trøndelag on US Navy ships. In October 2018, the USNS 1st Lt. Baldomero Lopez, from Maritime Prepositioning Squadron Two at Diego Garcia, brought M1A1 Abrams tanks from Trøndelag to Troms county. Inside a fjord, the Lopez unloaded tanks and other vehicles with cranes via an Improved Navy Lighterage System. The capability to unload at sea without a transfer dock was successfully demonstrated.

In a wartime scenario, this practice is problematic for two reasons. First, there may not be available ships. They may be busy elsewhere, or the

voyage from bases in Diego Garcia or Guam may simply take too long for such an option to be practical.

Second, ships like the Lopez will not be able to use the inner leads, at least not for the whole voyage. Although among the smaller maritime prepositioning ships, the Lopez (1985) is a large vessel with a length of 205 meters (673 feet), a beam of 32 meters (106 feet), and a draft of nine meters (29.5 feet). Such large ro-ro ships cannot sail through the leads. In an area in which there is likely to be enemy submarines, the risk in the open sea may be unacceptable. The present peacetime practice is to move the equipment of a full army brigade from CONUS to Europe on one or a few ships. If this is done in a USMC deployment from Trøndelag to Troms, the whole force may be destroyed by a single torpedo or a single missile.



The USNS 1st Lt. Baldomero Lopez (T-AK 3010) offload to an Improved Navy Lighterage System (INLS) during exercise Northern Screen in Bogen, Norway, October 2018. Photo: US Navy by Kenneth Gardner

Third, unloading with a lighterage system is a useful but slow process. A ship of this size laying completely still in a fjord for a long time may very well be exposed to random threats. It is simply too large to hide, too tempting an opportunity, and too large a target to miss. This practice would be very dangerous in a contested area.

Our proposal is to exploit Norway's large offshore fleet and its fleet of smaller, regional ro-ro ships. The latter are small enough to use the inner leads—and importantly, their crews sail these leads every day, all year round. Norwegian shipowners control a total fleet of almost 600 offshore vessels. This fleet is composed of platform supply vessels (PSVs), anchor handling tug supply vessels (AHTSVs), and more specialized crane vessels and offshore construction vessels. PSVs and AHTSVs, here grouped together as offshore support vessels (OSVs), may serve as connectors for both the USMC and the Norwegian Army, while other ship categories may be valuable in other roles.

The offshore support vessels typically have a length of 80–90 meters (262–295 feet), a breadth

of 18–22 meters (59–72 feet), and a draft of around 6–9 meters (19–29 feet).⁸ They can carry a load of around 4000–6000 tons, including a deck load of between 1500 and 2500 tons. The deck strength is normally 10–12 tons per square meter. Most have multiple thrusters (Bow-stern-azimuth), making the ships highly maneuverable and very stable. They have multiple tanks for fuel, water, and special liquids. Crews are normally between 25 and 60 persons. Some have powerful winches and cranes. Some have moonpools and embarked ROVs. Some have helicopter decks. Most PSVs have limited space for accommodation, while AHTVs typically have more.



In September 2019, the AHTS Boa Jarl and her sister ship were hired to serve with the Norwegian Coast Guard for five years. The ships are 91 meters long, 22 meters wide and can carry a load of 3790t. They have a deck area of 828 square meters, max deck load is 1600 tons, deck strength is up to 15 tons per square meters. Photo: Skipsrevyen.

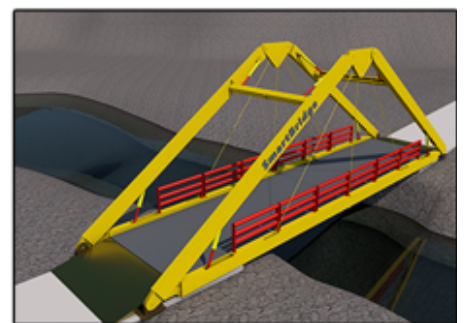
In the USMC, connectors are needed to bring troops, equipment, and supplies from the sea to the shore, normally a relatively short distance. We see a potential for using PSVs and AHTSVs as long-range connectors in a concept whereby each battalion

landing team is granted control of several OSVs. These vessels have multiple tanks for many categories of fuel as well as for water. They also have a large deck area. The decks are strengthened, particularly in the AHTSVs, for very heavy loads. The AHTSVs are well equipped with winches and cranes. The ships could bring foldable bridges, packed in 40-foot containers and quickly assembled with a crane. Such bridges could link ships to shore, but also to other ships or barges. This would make a landing possible almost anywhere. The force would not have to depend on ports or beaches.

Each battalion landing team would then be able to bring its troops, its logistics combat element, and substantial supplies directly to its assigned area of operations. If needed, the ships could stay in that AO as logistical bases. Alternatively, they could return south to bring in more supplies.

Atlantic Sealift and Seabasing

MCPP-N can also support a much larger force, a Marine Expeditionary Brigade (MEB) with munitions for 30 days. An MEB consists of a reinforced infantry regiment (the equivalent of an army brigade), a combat logistics regiment, a composite aircraft group, and a command element. If an MEB is deployed, most of its equipment will have to be brought in either by amphibious assault ships, maritime prepositioning ships, or large ro-ro vessels of the MARAD strategic lift fleet from the US. In a large crisis or war, it is likely that US forces would be needed in several theaters of operation. Amphibious assault ships, MPS, and US strategic lift capabilities will be in high demand. If a larger MAGTF should deploy to Norway, the equipment will have to be shipped in. The equipment stored in Norway represents a large—but not maximum—percentage of what a USMC force would need to be able to fight.



The Tec-Trans container based Smartbridge is 20-32 meters long, 4 meters wide and built for loads over 100 tons. Photo: Tec-Trans

The maritime prepositioning ships of the MSC are organized into two squadrons: one is based off Guam in the Pacific, while the other is stationed off Diego Garcia in the Indian Ocean. The squadron in European waters was disestablished in 2012. Ships from Diego Garcia may reach Norway in around two weeks—if the Suez Canal is open. If not, then the ships would have to circumnavigate Africa via the Cape Route, which would take one month. If the MCPP-N arrangement is to be effective in war, such a solution is not very credible. We suggest that the US and Norway should look into the possibility of storing similar equipment on the US East Coast. Further, we suggest an arrangement whereby Norwegian Ro-Ro ships are contracted and earmarked to bring the equipment to Europe in a crisis. Such a concept could be part of a larger US–Norwegian agreement on strategic sealift.⁹

The US Navy and the USMC have developed the Seabasing concept for almost two decades. The concept is primarily intended for operations in which there are no or few available bases on land. This will not be the case in Norway. But in the era of hybrid warfare and long-range precision-guided munitions, permanent bases and harbors are vulnerable. All harbors, and their approaches, are exposed to enemy mines, sabotage, and long-range missiles, as well as to classic bomber raids.

It may be possible, and preferable, to choose one harbor to use as a hub from which troops and supplies may be distributed to the field. It may well be possible to protect one or more harbors from most threats. But if so, this harbor will become a point of gravity, a *schwerpunkt*, for the whole operation. This, of course, invites an enemy attack of some magnitude. While in some cases, it may be desirable to choose to fight a battle of attrition in an area of one's own choosing, this would compel Norwegian and US forces to deploy a large share of their forces in defensive positions and would consequently leave the initiative to the enemy. If such a point of gravity is destroyed, then the campaign is likely to collapse.

The investment in the Seabasing concept seem to be limited to the Pacific. We suggest, however, that some parts of the concept could be tested in Norwegian waters with contracted or mobilized civilian resources. The Expeditionary transfer docks (previously known as Mobile Landing Platforms) where ro-ro ships will transfer

their loads to tactical connectors are basically semi-submersible ships configured to function as a mobile harbor. Norwegian shipowners control some such heavy lift semi-submersible ships, which could be modified to transfer docks, but they also possess many very large barges that could take on the same role.

We propose using heavy barges to establish temporary, moveable harbors to which strategic sealift ships or similar vessels may transfer their goods to other vessels serving as connectors or directly to shore via temporary bridges. In war, one must assume that the enemy's ability to locate and target mobile assets will be diminished, whereas the location of permanent harbors is obviously always known. Therefore, moveable harbors, operating in or close to the littorals, may be able to hide.

Summary

This paper proposes several concepts that would enable a safer and smarter redeployment of USMC forces northward from storage areas in Central Norway in case of war or heightened crisis. The concepts will provide enhanced operational and tactical mobility and facilitate more effective logistics in a challenging area of operations. We believe these concepts are feasible, but they need to be tested and developed. According to the agreement of 2006, Norway is responsible for moving and protecting the USMC force within Norway. The presented concepts should build on contracts between Norwegian authorities and shipowners. They should be exercised regularly.

The concepts are built around the huge capabilities of the Norwegian merchant fleet—in particular, the offshore fleet on the one hand, and the specific nature of the Norwegian littorals on the other. The credibility of these concepts rests on the ability of the Norwegian armed forces to establish and maintain sea control in the inner leads. In turn, this requires the maintenance and development of the Norwegian ability to fight in the littorals.

We believe these concepts represent a potential win-win solution for both Norway and the US. The credibility of US reinforcement of Norway in crisis or war would be enhanced. And as Norway steps up to shoulder a larger part of the burden, the US would be able to transfer scarce resources to other tasks.

Appendix 1: The NALMEB Agreement of 1981

I henhold til kgl.res. 16. januar 1981 ble avtalen undertegnet i Washington D.C. samme dato. Det vises til St.prp.nr.61 (1980–1981), Innst.S.nr.139 (1980–1981) og til vedtak i Stortinget 13. januar 1981. Avtalen trådte i kraft 16. januar 1981.

Memorandum of Understanding Governing Prestockage and Reinforcement of Norway

The Government of the United States and the Government of Norway, intending to strengthen the security of the NATO area through enhanced Alliance capability for reinforcing Norway, have agreed:

1. That the United States may provide, consistent with SACEUR requirements and implementing arrangements, a U.S. Marine amphibious brigade (MAB) for Alliance reinforcement of Norway within the NATO chain of command.
2. The composition of the Marine amphibious brigade shall include infantry and combat service support as well as aviation, artillery, infantry, and anti-tank weapons. The Marine aviation combat element shall perform air defence and close air support missions. It shall consist of two air defence squadrons, two close support squadrons, and appropriate support aircraft, as mutually agreed. It shall consist, furthermore, of approximately 75 heavy transport and light support helicopters.
3. In order to facilitate the rapid transfer of the MAB in a conventional Alliance reinforcement of Norway, the following heavy equipment and supplies for the use of that MAB will be prepositioned in Central Norway: 24 155-mm howitzers and their prime movers, bridging equipment, motor transport (approximately 250 trucks with about 100 trailers), ammunition, fuel, and food.
4. With respect to air defence of air bases, in addition to currently planned Norwegian defenses for air fields, the United States shall seek to make available upon favourable terms to the Government of Norway two batteries of I-Hawk subject to the requirements of U.S. laws and regulations. It is understood that Norway will be responsible for operations and maintenance costs, to include the cost of missiles, as well as any costs of refurbishing.
5. The Government of Norway shall make available adequate means to tactically load and transport personnel and equipment of the Marine Amphibious Brigade from Central Norway to other threatened areas in Norway.
6. The Government of Norway shall, through NATO infrastructure procedures, provide adequate prepositioning facilities and airbase reception facilities and operating airbases, and shall assume responsibilities for security and general maintenance of prepositioned equipment and supplies in consonance with the provisions as outlined in Article 10 of the memorandum from the Norwegian Ministry of Defense to major NATO commanders (MNC) of 11 December 1959. Financial arrangements for the cost of operations and maintenance will be mutually agreed.
7. In the event that the Marine Amphibious Brigade should be transferred to other threatened areas in Norway, it will draw on Norwegian stocks of available "common user" items such as munitions, food, and fuel to allow time for establishing of U.S. logistical support.
8. The Government of Norway shall make available host nation support for the MAB including some 150 over-snow vehicles, two motor transport companies (90 trucks each), one ambulance company (35 ambulances), one refueler section (6 trucks), and necessary engineering and airbase support equipment as mutually agreed.
9. The Government of the United States agrees to accept Norwegian rules with respect to ownership, control, and access to infrastructure installations as outlined in Article 10 of the memorandum from the Norwegian Ministry of Defense to MNC's of 11 December 1959.
10. Norwegian policies with respect to the stationing of foreign troops on Norwegian territory and the stockpiling or deployment of nuclear weapons on Norwegian territory will not be altered by this agreement.
11. This arrangement is subject to amendment by agreement of the parties.

12. This Memorandum of Understanding shall enter into force on the day of signature. It shall continue in force until terminated by one year's notice by either party.

Washington, D.C., February 16, 1981.

Appendix 2: The MCPP-MOU from 2006

Signed June 8, 2005, approved in Parliament December 19, 2006, in force from February 27, 2007.

Memorandum of Understanding (MOU) Governing Prestokage and Reinforcement of Norway¹⁰

The Government of the Kingdom of Norway and the Government of the United States of America, hereinafter referred to collectively as "the Parties" and individually as "Party";

- Committed to strengthening the security of the North Atlantic Treaty Organization and enhancing operational responsiveness;
- Taking into account Article 5 of the North Atlantic Treaty; and
- Recalling the Agreement between the Parties to the North Atlantic Treaty Regarding the Status of Their Forces, done at London on June 19, 1951;

Have agreed as follows:

1. The Government of the United States will provide, consistent with U.S. Secretary of Defense requirements and implementing agreements, a Marine Corps Prepositioning Program in Norway (MCPN).
2. The MCPN will support the reinforcement of Norway, as well as global U.S. Marine Corps expeditionary operations, including establishment of forward operating bases and selected security cooperation activities in support of U.S. Regional Combatant Commanders, and such other purposes as the Parties may mutually agree.
3. For all activities listed in paragraph 2, the Government of the Kingdom of Norway shall make available adequate means to load, transport, and protect equipment of the MCPN from Central Norway to mutually agreed Norwegian sea or air ports of embarkation. In the event the MCPN is used to reinforce Norway, the Government

of the Kingdom of Norway shall make available adequate means to load, transport, and protect equipment of the MCPN, as well as receive, stage, and move onward personnel and equipment to predesignated areas within Norway.

4. The Government of the Kingdom of Norway shall provide adequate prepositioning facilities, airbase reception facilities, and operating air bases, and shall assume responsibility for security and general maintenance of prepositioned equipment and supplies. The Parties agree to cost-share such operations and maintenance expenses in support of the MCPN. The Government of the Kingdom of Norway contribution will be limited to half of the total costs incurred or the ceiling set in U.S. dollars to be negotiated by the Parties, whichever is less. Any expenses to be paid by the Parties will be agreed to in advance, subject to the respective laws of each Party. As appropriate, logistics supplies, support, and services may be provided under the Mutual Logistics Support Agreement of August 20, 1982, as amended.
5. In the event of the reinforcement of Norway, the Government of the Kingdom of Norway shall make available host nation support for the MCPN, including over-snow vehicles, motor transport assets, medical support, refueling capability for ground equipment and aviation assets, and necessary engineering and airbase support equipment as mutually agreed. MCPN will draw on Norwegian stocks of available "common user" items, such as munitions, food, and fuel, to allow time for the establishment of U.S. logistical support.
6. Consistent with paragraph 7, the Government of the United States of America confirms Norwegian ownership and control of the prepositioning facilities and installations that are the subject of this MOU.
7. The Government of the United States of America shall retain ownership of all Prepositioned stocks of the MCPN, and may withdraw such stocks from the MCPN pursuant to paragraph 1 in consultation with the Government of Norway.
8. Norwegian policies with respect to the stationing of foreign troops on Norwegian territory and the stockpiling or deployment

of nuclear weapons on Norwegian territory will not be altered by this MOU. The Government of the United States of America will respect Norwegian international legal obligations with regard to the stockpiling of certain types of weapons on Norwegian territory.

9. This MOU is subject to amendment by mutual written agreement of the Parties. As appropriate, the Parties may enter into Implementing Agreements or Arrangements to carry out the provisions of this MOU. Activities covered by this MOU are subject to the availability of funds, appropriated for such purposes.
10. This MOU supersedes the Memorandum of Understanding Governing Prestockage and Reinforcement of Norway, between the Government of the Kingdom of Norway and the Government of the United States of America, signed in Washington, D.C. on January 16, 1981. The Parties confirm the application of the Agreement between the Parties to the North Atlantic Treaty

Regarding the Status of Their Forces, signed June 19, 1951, to all activities conducted pursuant to the MCPP-N and this MOU. This MOU shall enter into force on the date on which the Parties have informed each other through diplomatic channels that they have fulfilled their respective internal requirements necessary to bring it into force. It shall continue in force until terminated by one year's written notice by either Party to the other through diplomatic channels.

In witness whereof, the undersigned, duly authorized by their respective Governments, have signed this MOU.

Done in duplicate at Stavanger this 8th day of June, 2005.

¹ COB – Colocated Operating Base.

² See Milan Vego, *Naval strategy and operations in narrow seas*, (2003)

³ Kjell Sørli, *Fra krise til konsensus. Marinens anskaffelser og krigspålagte oppgaver 1950-1960*, (Forsvarsstudier no. 2, Institutt for forsvarstudier, Oslo, 2000). Downloaded from <https://fhs.brage.unit.no/fhs-xmlui/bitstream/handle/11250/99715/FS0200.pdf?sequence=1&isAllowed=y> September 2019.

⁴ USMC Prepositioning Handbook, 3rd Edition, 2015, Table I, I-5.

⁵ For Exercise Trident Juncture 2018, two ro-ro vessels brought in 450 pieces of rolling stock and containers from the US and Germany. The M/V Resolve is 190 meters long with a beam of almost 33 meters. See “ARC Discharges Army and Marine Corps Cargo in Norway for Operation Trident Juncture” ARC homepages September 25, 2018. Downloaded from <https://www.arcshipping.com/news/arc-discharges-army-and-marine-corps-cargo-in-norway-for-operation-trident-juncture/>

⁶ Hopefully, Norway will be able to establish credible air defense over key areas in Trøndelag and Troms counties.

The AD system in Trøndelag may cover the sea port of embarkation as well as the air bases in Værnes and Ørland. The AD system in Troms may cover the sea ports of debarkation, depending on the mission and objectives.

⁷ The research project, Seapower 2040, is ongoing at the Royal Norwegian Naval Academy. Reports on the development of the Russian Navy in general, and the Northern fleet in particular, will be published in the spring of 2020.

⁸ For examples from four different companies, see <https://www.solstad.com/fleet/>
http://www.dof.no/Files/PDF/DOF%20Group/Media/DOF_fleet_booklet_web.pdf
<http://www.siemoffshore.com/Default.aspx?ID=172>
<https://www.boa.no/vessels/>

⁹ This is discussed in RNoN's Concept Paper Series 1/2019, “Bridging the Atlantic.”

¹⁰ The Treaty is located here: <https://lovdata.no/dokument/TRAKTATEN/traktat/2005-06-08-101>

Concept Paper Series

The Concept Paper Series is an outlet of applied research addressing problems, needs and challenges in the security, defence and military spheres. Publications attempt to provide outlines of feasible solutions based on findings from RNoNA's research projects and concept development methodology. The series presents concepts that are advantageous at the tactical, operational, strategic or political level and actually possible to implement in practice. The concepts identify thresholds, barriers and showstoppers, and attempt to work around them. The proposals will rarely be fully developed plans. Rather, they will provide a map of the problem at hand and practical suggestions and proposals on how to solve it.

Royal Norwegian Naval Academy

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The research project "Revitalizing Transatlantic Maritime Security: Filling Capability Gaps with the Norwegian Commercial Shipping Sector" intends to bring forward creative ideas on how to fill logistical gaps by leveraging private-public partnerships with merchant fleet operators. The project is a collaboration between Center for New American Security, Norwegian Institute of International Affairs and the Royal Norwegian Naval Academy. The project is funded by a research grant provided by the Norwegian Ministry of Defence.

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