



FORSVARET

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P-8 and the Trilateral Partnership

The operational significance and influence on

Norwegian security policy

Jan Egil Rekstad

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Foreword

This thesis is the culmination of the Norwegian Defence University College Staff Course. Security policy, the High North and maritime airpower are topics of particular personal and professional interest. Getting the opportunity to study these subjects in depth has consequently been a privilege.

During the course of the master thesis, several people have contributed significantly to the finished product. First, goes an appreciation to my family. In particular, to my fantastic wife who has kept me going in terms of motivation and encouragement during times of frustration. Conversations on and off topic during periods of stagnation and struggle, and managing everyday life in a way that has allowed me to fully concentrate on this study, have been invaluable contributions – Thank you Sara! An appreciation also goes to those who have read and provided valuable feedback on the thesis.

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Finally, a special appreciation to my supervisor Rolf Tamnes. His knowledge of security policy and defence, and straightforward supervision was key to this project. It has been a great privilege to benefit from a supervisor of such insight and devotion.

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Abstract

The background for and the strategic context of this thesis is the threat posed by Russian submarines to Norway and NATO in the North Atlantic. In light of this, the study examines the significance of the P-8 and the trilateral partnership of Norway, the United Kingdom and the United States, by asking two research questions:

- *What is the operational significance of the P-8 and the trilateral partnership?*
- *How does the P-8 and the trilateral partnership influence Norwegian security policy?*

It is an explorative and inductive study, which answers the research questions through a qualitative analysis. The thesis uses deterrence, crisis stability and maritime airpower theory, as well as Norwegian Security policy and defence concept, with emphasis on integration and reassurance to frame the discussion.

The thesis concludes that the P-8 will provide Norwegian decision-makers with an agile platform with significantly improved capability for ASW and ISR. The trilateral partnership integrates the three partner nations and improves NATO's ASW capability when facing Russian submarines in the North Atlantic.

The P-8 and the partnership influence deterrence positively by integrating Norway, NATO and the US, and provide tools for improving crisis stability. However, given the impermanency of American Poseidons, there is a need to establish a trilateral P-8 concept that merges training, exercises and operations as a signal of presence and integration in the North Atlantic.

The contribution of the P-8 in Norway's policy of reassuring Russia is important as Norway increasingly develops a force structure with so-called offensive strategic capabilities. Of particular importance to reassurance is enhancements in intelligence contributions. Provided the strategic context, improved capabilities and the Norwegian force structure, the influence of the P-8 is decisive for the Norwegian security policy.

Sammendrag

Bakgrunnen for denne oppgaven og den strategiske konteksten er trusselen Russiske ubåter utgjør for Norge og NATO i Nord-Atlanteren. I lys av dette undersøker oppgaven betydningen av P-8 og trilateralt samarbeidet mellom Norge, Storbritannia og USA, gjennom å stille to forskningsspørsmål:

- *Hva er den operative betydningen av P-8 og det trilaterale partnerskapet?*
- *Hvordan påvirker P-8 og det trilaterale partnerskapet norsk sikkerhetspolitikk?*

Studien er eksplorativ og induktiv, og benytter kvalitativ metode for å besvare forskningsspørsmålene. Analysen nyttiggjør teorier for avskrekking, krisestabilitet og maritim luftmakt, i tillegg til norsk sikkerhetspolitikk med vekt på integrasjon og beroligelse, som rammeverk for diskusjonen.

Opgaven konkluderer med at P-8 vil tilføre norske beslutningstakere en fleksibel plattform som i betydelig grad bedrer evnen til anti-ubåt krigføring (ASW) og informasjonsinnhenting (ISR). Det trilaterale samarbeidet integrerer de tre partnernasjonene og bedrer NATOs evne til ASW i møte med russiske ubåter.

P-8 og det trilaterale partnerskapet påvirker avskrekking positivt gjennom integrering av Norge, NATO og USA, og tilbyr muligheter for å bedre krisestabiliteten. På en annen side er det forventet at amerikansk tilstedeværelse med P-8 vil være av en mindre permanent karakter. Dette medfører et behov for et trilateralt P-8 konsept som sammenslår trening, øvelser og operasjoner i Nord-Atlanteren.

P-8s bidrag innen beroligelse er av sentral karakter, ettersom Norge i økende grad satser på avskrekkende kapabiliteter i styrkestrukturen. Spesielt viktig er økt kapasitet innen etterretningsbidragene. Med utgangspunkt i den strategiske konteksten, forbedrede kapabiliteter og den norske styrkestrukturen, er innflytelsen til maritime patruljefly av avgjørende betydning for norsk sikkerhetspolitikk.

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Part I – Introduction

Chapter 1. Background

During the Cold War, NATO's deterrence towards the Warsaw Pact relied on the ability to establish and maintain unfettered access to and through the North Atlantic. Rapid reinforcements to Norway and other allied partners from North America were essential to withstand Soviet invasion and occupation. As a response to NATO's need for reinforcements and deployment across the North Atlantic, the Soviet maritime strategy gave priority to interdiction by extensive use of submarines. Consequently, NATO established and honed anti-submarine warfare (ASW) capabilities, developed technologies and established command & control structures to counter Soviet submarine threats. Through building proficiency in ASW at all levels, NATO was able to establish a credible deterrent in a contested battlespace as well as providing crucial protection of the ultimate deterrent – the nuclear ballistic missile submarine (SSBN) (Hudson & Roberts, 2016, p. 77).

After the collapse of the Soviet Union, naval war fighting capabilities in NATO suffered extensively from budget cuts, affecting in particular costly and complex ASW force structures. There existed no longer any obvious threats from Russian submarines, and the strategic environment called for a shift in strategy from deterrence and defence towards expeditionary warfare. Western naval forces consequently adapted to power projection towards land in environments largely uncontested by peer adversaries, rather than securing Sea Lines of Communications (SLOC) and establish sea control in contested ones (Efjestad, 2016, p. 60; Hudson & Roberts, 2016, pp. 79-81; Tamnes, 2016, pp. 17-18).

Recent year's Russian military development and aggressive behaviour in international politics, accompanied by invasions in Georgia and Ukraine, caused NATO to revert to collective defence and deterrence measures aimed at preventing further Russian aggression (Friis, 2017, pp. 36, 41-42). As during the Cold War, protecting the transatlantic SLOC once again has become vital to NATO in order to re-establish a credible deterrent towards Russia. Despite the fall of the Iron Curtain, submarine platforms continued to evolve creating a technological offset currently in favour of the submarine (Efjestad, 2016, pp. 66-67; Hicks, Metrick, Samp, & Weinberger, 2016, p. V).

With the atrophy of NATO ASW resources and increased activities and capabilities of Russian submarines, the North Atlantic is now considered “the weak link” in NATO, raising

doubts about NATO's credibility in deterring Russia (P. Roberts, 2018). Possible transatlantic cable tampering by Russian special purpose submarines also raises concern in the west. Complex energy and transport infrastructures across the ocean floor – the foundation of western economy and welfare, stand out as vulnerable to Russian hybrid measures. Defending the SLOC is therefore more comprehensive than just protecting naval and commercial shipping from submarines (Hicks et al., 2016, pp. 4-12; Tamnes, 2016, pp. 21-22).

A reinforced maritime posture for NATO, the reactivation of the US Navy 2nd Fleet and the establishment of an Atlantic Command for NATO is currently underway, as an initial effort to counter Russian efforts in the undersea domain and ensure the SLOC between Europe and North America (W. Morgan, 2018; NATO, 2018, p. 7). The broader solution also calls for advances in technology, tactics and not least capable platforms for ASW purposes. Magnus Nordenman, former director of the Scowcroft Center of Transatlantic Security Initiative, writes, “That a NATO maritime patrol aircraft consortium would be a cost-effective way for Alliance members to build a robust set of capabilities, at a time when NATO's maritime flanks are increasingly turbulent, contested and competitive.” As Russian sub-surface challenges are among the most difficult challenges faced by the Alliance, it is a threat that deserves special attention. Airborne systems providing Maritime Domain Awareness (MDA) and Maritime Patrol Aircraft (MPA) particularly provide a range of capabilities that stand out as urgent to re-establish within the Alliance (Nordenman, 2016, pp. 2, 9).

1.1 Topic and Research Questions

The Royal Norwegian Air Force P-3 Orion MPA has been, and remains vital to Norwegian and allied policymakers for deterrence and crisis stability in the North Atlantic (Regjeringen, 2016a, p. 65). Acknowledging the strategic challenges evolving in the North Atlantic as well as seeing the need for replacing the aging P-3 Orion and the DA-20 Falcon EW aircraft, the Norwegian Government ordered five P-8A Poseidon, due for service in 2022-2023. The Government describes the replacement as “a formidable platform for maritime surveillance”.

The P-8 is a multi-mission maritime patrol and reconnaissance aircraft, originally designed to replace the aging P-3C Orion for the US Navy, and has become the primary choice of MPA for other nations worldwide. The aircraft is fitted with the latest generation of sensors improving capabilities within the aircraft's primary roles of ASW, ASuW (Anti-Surface Warfare) and ISR (Intelligence, Surveillance & Reconnaissance). The all-weather capable P-8 has a range of optical, electronic and acoustic sensors that are capable of both passive and active

detection, recognition, classification and identification of contacts at standoff distances (US Navy, 2017). A range of weapons, including torpedoes for ASW and missiles for ASuW, can be loaded internally in the weapons bay or externally on wing-pylons. Increased reliability, flight characteristics and sensor capabilities are significant and evolutionary improvements compared to its P-3C Orion predecessor. The advances seen in sensor management, data fusion and connectivity are revolutionary developments (Rogoway, 2014a). The C4ISR (Command, Control, Communications, Computers and Intelligence Surveillance & Reconnaissance) capabilities of the P-8A enable net-centric warfare in constellation with other air and seaborne surveillance and weapons platforms (GlobalSecurity, 2016).

The Norwegian procurement comes following the United Kingdom government's decision to take delivery of nine P-8A Poseidons in 2019-2021 (Regjeringen, 2017a; UK Ministry of Defense, 2016). With this procurement, government officials from Norway, the UK and the US have initiated a trilateral cooperation in maritime security founded on the P-8A Poseidon (Regjeringen, 2017c). On the 29th of June 2017, Pentagon stated that, "Today, Norway, the United Kingdom and the United States signed a statement of intent to lay out guiding principles for a trilateral partnership centred on the P-8A Poseidon aircraft to address the changing security environment in the North Atlantic" (US Department of Defense, 2017). How the aircraft is employed is likely a result of its capabilities and individual requirements of each of the countries, balanced with the needs of the NATO.

The aim of this study is to research what significance the introduction of the P-8 and the trilateral partnership with the UK and the US has to Norway. The study analyses the operational impact of the aircraft by looking at ASW and ISR capabilities of the aircraft against the challenges posed by Russian submarines in the North Atlantic. The study furthermore looks at what implications the P-8 and the trilateral cooperation have on Norwegian security policy within the framework of deterrence, crisis stability and reassurance. The study consequently deals with two research questions:

- *What is the operational significance of the P-8 and the trilateral partnership?*
- *How does the P-8 and the trilateral partnership influence Norwegian security policy?*

There exist little academic research on the subject of MPA operations. *Maritime air power* belongs conceptually and doctrinal to both *airpower* and *seapower*, and it seems that since it principally falls in-between the two service's sphere of interest, it has been neglected

(Dyndal, 2015, p. 109). The P-8A Poseidon represents new capabilities and with the trilateral partnership, new possibilities arise for Norwegian policy-makers. It does however, invite to careful and sound judgements, as the employment of both the aircraft and the partnership has the potential of unintentional escalation or failed deterrence. The study consequently aims to contribute to policy-making and defence planning, by providing insight into how ASW and ISR (Intelligence, Surveillance & Reconnaissance) operations may affect strategic balance.

1.2 Disposition

The study consist of three parts. *Part I Introduction* introduces the reader to the background, highlights its relevance and lays out two research questions, along with key terms and concepts important to the study. *Part II Analytical Framework* outlines the research approach and methodology, and presents theories on security policy and defence used in the research. *Part III Analysis* is the main body, consisting of chapter four to six. Chapter four initially discusses the strategic context, Russian military ambition and the threat Russian submarine capabilities constitutes in the North Atlantic and the High North, as well as the potential for conflict in the region. It finishes by examining the Norwegian security policy and defence concept in relation to Russia. Chapter five looks into the capabilities of the P-8 and the contributions of the transatlantic partnership, and discusses the operational significance it has for ASW and ISR operations. Chapter six examines how the P-8 and the trilateral partnership influence Norway's security, specifically in deterrence, crisis stability and reassurance towards Russia. *Part IV Conclusions* highlights the findings in the analysis section and concludes on the research questions.

1.3 Key Terms and Concepts

Security Policy is a central term in the thesis. The broad definition of security policy as defined by the Norwegian Government is to assure Norwegian sovereignty, territorial integrity and political freedom of action, ensured by a comprehensive set of political instruments (Regjeringen, 2016b). For the purpose of this study, security is more narrowly defined and refers to state-to-state relations and the military as the main instrument of political power, rather than non-state actors requiring other measures of security.

Armed conflict or *war* is a situation where the state's existence, sovereignty, territorial and political freedom is threatened, and challenged through armed assault, military and political coercion by another state actor, which makes armed conflict and use of military resources for

defence legitimate in accordance United Nations Article 51 (Ekspertgruppen for Forsvaret av Norge, 2015, pp. 7-8; United Nations, 1945).

A *Security Crisis* is a situation that brings two or more states into conflict of interest, and there is perceived a risk of *armed conflict* or *war* (Skogan, 2009, pp. 28-29). A security crisis will unfold itself in the undefined areas between armed conflict or war, and peace. A security crisis falls outside the parameters of NATO's Article V, but may include other ways of allied aid (Ekspertgruppen for Forsvaret av Norge, 2015, pp. 7-9).

Maritime Patrol Aircraft (MPA) is a general term commonly used for describing fixed wing aircraft fitted with sensors and weapons for maritime patrol missions and ASW. A range of other designations offer more precision towards specific characteristics and capabilities of maritime patrol aircraft. The P-3 Orion is for instance a Long-Range MPA (LRMPA), and the P-8A Poseidon is a Multi-mission Maritime Aircraft (MMA), in essence an LRMPA with a broader range of missions (Håvold, 2015, pp. 15-18; US Navy, 2017). MPA is for this study used as a general term referring to the P-3 Orion and the P-8A Poseidon.

Anti-Submarine Warfare (ASW) are efforts intended to prevent the enemy from exploiting their submarines in an effective manner. Anti-submarine Warfare includes all means that enable search, localization, classification, track, attack, avoidance, deterrence, neutralization or the destruction of opposing submarines (Forsvaret, 2015, p. 213; NATO, 2017a). High-end ASW refers to operations of particularly high intensity, for submarine surveillance or warfare purposes.

Sea Lines of Communications (SLOC) are key maritime passageways facilitating large volumes of merchant shipping that carries trades of strategic value. SLOCs are of particular geostrategic importance. If blocked in time of crisis or war, it most likely strangle those depending on the SLOC. Geographically it refers to open stretches of waters, littorals, straits, choke points and harbours, and is in the study used in a broad sense (Khalid, 2012, pp. 1-2).

Part II – Analytical Framework

Chapter 2. Methodology

This chapter presents the research methodology and sources used in the study, discusses weaknesses and evaluates potential shortcomings in the validity and reliability of the research.

Norway and the UK still have a way to go before reaching an operational capability with the P-8, however, the process of establishing a framework for support and concepts for operations is under way. The aircraft is currently in service with the US Navy, deployed into virtually any theatre the US has a maritime interest. The capabilities brought forward by the aircraft and its global presence have spawned numerous public articles, however, very few scientific studies appear. Consequently, the need for research in this field appears as relevant.

The study is explorative as published research on the subject is scarce. It addresses specific and emerging technology, capabilities and concepts in a specific context, which makes it a case study. It aims at providing insight into the influence a trilateral P-8 partnership has on Norwegian defence and security. Moreover, by looking at MPA operations in relation to deterrence, crisis stability and reassurance, it contributes to a field of research where published work is rare, hence is it an inductive study. A qualitative design is consequently chosen for the study, aimed at establishing a nuanced analysis in depth of the research questions (Jacobsen, 2005, pp. 35-37, 62; Tjora, 2012, pp. 19, 22, 26).

The study examines the research questions using primary and secondary sources. Primary sources consist of public documents, speeches and interviews performed by the author. Secondary sources are reports, peer-review articles, books, press releases and theses as well as news sources. Interviews are central in the analysis, as little written material is publicly available on the subject. Informants were consequently selected among Norwegian experts with first-hand experience in security policy, intelligence, defence and maritime air operations.

Arild Eikeland is the Arild Eikeland, Deputy Director General, Director for International Security Policy, Defence cooperation and operations in the Department of Security Policy and Operations, NOMOD. Eikeland coordinates the MOD's cooperation regarding the P-8s with the US and the UK. His perspectives from the political level on security policy and the

trilateral partnership provided significant insight into the strategic significance of the P-8, as well as the current and future developments in the trilateral partnership.

Lieutenant-General (R) Kjell Grandhagen, is the former Director of Norwegian Intelligence Service. Grandhagen worked with the intelligence services' assessments and requirements for the P-8, during his period as director from 2010 to 2016. Grandhagen has an extensive career at the military strategic level, and his comprehension of Norway's role in the High North, the relation between Norway and Russia, and Norway's bilateral intelligence cooperation with the US, contributed to particular insight and nuance when analysing the P-8's significance to Norway's security policy.

Brigadier-General Leif Sommerseth, Chief of Joint Operations at Norwegian Joint Headquarters at Reitan, is responsible for the conduct of Norwegian maritime patrol operations at the joint operational level. Sommerseth contributed to a comprehension of the significance of MPA operations in the High North from an operational level perspective. Of particular value to the analysis is his insights into the significance of Norway's MPAs in the operational *and* strategic context.

Brigadier-General Jan Ove Rygg, Commander Norwegian Air Operations Centre at Reitan, responsible for air operations at the tactical level, by tasking and execution of Norwegian national MPA operations. Rygg provided insightful perspectives on cooperation between new capabilities at the tactical level. Of particular significance to the analysis of network capabilities, is the possibilities inherent in cooperation between the P-8 and the F-35.

Several books, reports, theses and articles have been central to the thesis. *NATO and the North Atlantic – Revitalising Collective Defence*, a Whitehall paper edited by Colonel John Andreas Olsen, which offers comprehension of NATO's challenges posed by the threat of Russian submarines in the North Atlantic (Olsen, 2017). The Center for Strategic & International Studies (CSIS) has published a range of comprehensive reports addressing the Russian submarine threat, and allied ASW capabilities for deterrence and defence in Europe. Two of these reports, *Undersea Warfare in Northern Europe* and *Contested Seas* contributed particularly to the choice of subject, and provided background and insight into Russian submarines and operations for the analysis (Hicks & Metrick, 2018; Hicks et al., 2016).

Ole Marius Tørrisplass' thesis on *Deterrence and Crisis Stability – F-35 and Joint Strike Missile's effect on Norwegian security policy towards Russia*, provides a guideline for the

structure and design of the study (Tørrisplass, 2017a). Gjert Lage Dyndal's article on *A Theoretical Framework on Maritime Airpower* offers insight into maritime airpower theory (Dyndal, 2015). Geoffrey Till's *Seapower* provides theoretical perspectives on both seapower and deterrence (Till, 2013).

The unclassified annual threat assessment from the Norwegian Intelligence Service, *FOKUS 2018*, provides assessments on Russian interests, strategy capabilities (Etterretningstjenesten, 2018). Russian submarine capabilities now include long-range precision guided weapons. Roger McDermott and Tor Bukkvoll's *Tools of Future Wars*, and Ørjan Askvik's thesis *Utvikling av langtrekkende konvensjonelle presisjonsvåpen* is thus of interest to the study, providing awareness of the strategic challenges posed by long-range precision strike capabilities (Askvik, 2015; McDermott & Bukkvoll, 2017). *Unified Effort* by the Expert Commission on Norwegian Security and Defence Policy, provides a first-hand knowledge on the Norwegian security policy, defence concept and the emerging security challenges for Norway (Ekspertgruppen for Forsvaret av Norge, 2015).

The Joint Air Power Competence Center (JAPCC) report on *Allied Anti-Submarine Warfare* is a comprehensive study of technological, organisational and environmental challenges in ASW, as well as the state and future of NATO's ASW capabilities with emphasis on MPA's. The study is used extensively in the analysis of the operational significance of the P-8 and the trilateral partnership (JAPCC, 2016). Harald Håvold's NUPI report on *Airborne Maritime Surveillance and ASW*, sheds light on general and specific characteristics of maritime patrol aircraft and emerging developments for airborne ASW (Håvold, 2015).

Håvard Klevberg's book *Request Tango*, covers a historic perspective on MPA operations and cooperation in the North Atlantic and the impact it had on Norwegian security policy during the Cold War. Klevberg's comprehensive work contributed to my insight into the strategic significance of Norwegian MPA operations and of the influence of the P-8 on Norwegian security policy (Klevberg, 2012).

A purposeful source selection of theory, written sources and interviews aims at establishing a solid empirical foundation, a nuanced analysis of the research questions, and enable triangulation of information to improve reliability and validity. The scarce amount of available research and the qualitative nature of the study led to the choice of in-depth interviews to improve reliability. Selection of informants from the political and all three military levels was done to improve nuance and capture difference in opinion as these could

be different or contradictory as a result of position in relation to the subject. However, the four informants were during interviews largely concurrent in their answers and views, thus strengthening confidence in reliability.

Increasing the number of informants by selection of two informants from each level, could further improve reliability. However, given the time provided for the project the initial ambition was set at six informants. The selection of informants revealed that there existed few candidates with comprehensive insight into the subject that were willing to participate. The number of informants hence reduced to four. Interviews were conducted face to face in a semi-structured manner, using the interview guide as a reference, to ensure that relevant knowledge possessed by interviewees not covered in the interview guide was addressed (Jacobsen, 2005, pp. 142-145, 229-230; Tjora, 2012, pp. 104, 202-206).

Theories of deterrence, crisis stability, airpower and seapower constitutes the theoretical framework for the analysis. Deterrence and defence theories are abundant in describing the strategic dynamics between bipolar superpowers during the Cold War. This goes for crisis stability theories as well since it ties closely to deterrence. However, conceived during a different time and strategic context, certain aspects of theories applicable to the Cold War and nuclear strategy does not fit the current reality nor the subject. Consequently, has the thesis aimed for theories that are suitable for the subject of this thesis, and establish a *framework* for the analysis rather than an item of discussion.

This study treats air and seapower theories interdependently, as theories exclusive to maritime airpower are nearly non-existent. According to Dyndal should maritime airpower be understood as both airpower and seapower. Seapower provides the fundament for understanding maritime airpower's purpose, i.e. *what* task and effect requirements that exist maritime domain. While airpower theory provides the characteristics, possibilities and limitations embedded in airpower, height, speed, reach etc., governing factors for *how* air platforms accomplish tasks and achieve effects. Airpower theories are often criticised of being unscientific and overly optimistic, especially when considering the strategic effects of airpower. However, for this study the purpose of airpower theory is to provide insight into the physical characteristics of aircraft, rather than their doctrinal application (Dyndal, 2015, p. 109; Naastad, 2006, pp. 406-408).

Capabilities of the P-8 are provided by open sources due to the classified nature of ASW operations. Sources like Boeing, the Norwegian Ministry of Defence, the United Kingdom

Ministry of Defence, the Royal Air Force, the US Department of Defence and the US Navy all provide open source data on the aircraft. As these institutions speak to a broader audience, there is a risk that openly available capabilities are over-appraised, thus introducing less confidence in. However, background could improve validity and mitigate classification issues.

My background as a Tactical Coordinator (TACCO) on the P-3 Orion and experience from Operational Test & Evaluation of the NH90 maritime helicopter implies that I have acquired first-hand knowledge of performance on systems comparable to the P-8. I am as such able to assess data available through open sources, thus improving validity and reliability. On the other hand, background may also be a source of bias. My service on MPAs could produce a biased analysis that favours a certain outcome for MPAs in the thesis. Informants also have a relation to the subject and may be predisposed by background as well. Consequently, I have strived to maintain an objective approach to the research and remain critical acting as an interviewer, as well as triangulate sources to increase reliability and validity (Jacobsen, 2005, pp. 19-20).

The subject implies that classification could be a challenge in two ways. One is retrieving technical information for the analysis as ASW and MPA operations usually are classified. Two is the risk that the sum of all unclassified sources in the end requires a higher classification due to the combination of data and findings in the analysis. During interviews, the unclassified nature of the research was clearly stated, and readdressed at the end of the interview. In addition, open sources provided for capabilities. More importantly, the analysis circumnavigated precise capabilities and capacities, and was elevated to a general level using physics and theoretical examples to avoid classification issues. Finally, the interviewees examined the thesis prior to publication, with no objections to references or contents.

Interviews used in research under governance of the Royal Norwegian Defence University College need to comply with some administrative requirements. Interviews are subject to public privacy policies, requiring approval from both Personvernombudet for Forskning (Appendix A), and The Royal Norwegian Defence University College (Appendix B). The interview guide was available to informants a few days in advance of the interview for preparation (Appendix C), and the interview and information consent form (Appendix D) forwarded for interviewee signature. Prior to publication of the thesis, each informant had the opportunity to approve references used in the study.

Chapter 3. Theory

This chapter provides a theoretical framework for the analysis section. *Deterrence* and *crisis stability* provide perspectives on security policy at the strategic level, whereas *maritime airpower* theory is the conceptual application of airpower in order to achieve maritime objectives. Firstly comes the definition and background, distinctions and principal mechanisms of deterrence. Secondly, definitions, concept and mechanisms of crisis stability. Finally, a definition and description of maritime airpower with emphasis on the roles of maritime patrol aircraft in ASW and ISR in contributions to sea control and sea denial.

3.1 Deterrence

Deterrence can be described the manipulation of other individuals' behaviour through threats. The type of threats vary but often include the use of physical force, confusion or bluffing opponents by conveying a perception that their attempts will be unsuccessful or even costly to achieve (Freedman, 2004, p. 6). A more contemporary definition suited for security and defence comes from maritime strategist Geoffrey Till, "Acts of deterrence are aimed at preventing someone from doing something by creating an expectation that the likely cost of the act would exceed the likely benefits". Deterrence tends to be passive rather than active, a matter of intentions and perceptions, and general as opposed to specific (Till, 2013, p. 233).

Contemporary use of deterrence in military strategy comes according to Freedman, from early airpower theorists of the 1920s and 1930s, pondering whether retaliatory bombing of civilian infrastructure and public will, could act as a means of preventing enemy air raids. As nuclear weapons entered the scene and the Cold War unfolded, it became apparent that there was no way of fighting a war without the complete annihilation of society, making it a compelling case to avoid war. The assured destruction posed by nuclear war presented such a credible threat that nuclear deterrence became the primary among strategies up until the fall of the Iron Curtain (Freedman, 2004, pp. 9-10; Naastad, 2006, pp. 399-402).

Patrick M. Morgan (2012) argues that nuclear deterrence lost its significance because of the exit of peer-competitors for USA after the Cold War. With the re-emergence of Russia on the international stage viewing the West as an opposing power, great power politics re-emerged, and so did deterrence (Friis, 2017, p. 1). Despite resemblance to the Cold War, the contemporary strategic context offers some added complexity to traditional deterrence. Russian doctrine for use of non-strategic nuclear weapons (NSNW) to escalate-deescalate a

conventional conflict, nuclear proliferation, hybrid warfare and allied Ballistic Missile Defence (BMD) all offers their own set of challenges regarding the applicability of traditional deterrence. (Facon, 2017, p. 14; P. M. Morgan, 2012, pp. 91-92; Zysk, 2017b).

Deterrence by conventional means applied to the maritime environment – naval deterrence in the conventional sense, appears of particular interest to Norway and speaks specifically to this study. Geoffrey Till (2013) refers to *general* and *immediate* deterrence as distinguishable forms in a broad description of naval deterrence. First, *general* deterrence is a passive and implicit form of deterrence characterized by stability. This is the case when opponents maintain armed forces and regulate their relationship without actively seeking to mount an attack on each other (P. M. Morgan, 2003, p. 9). The continuous presence of naval or other forces capable of armed intervention in a region are illustrative of general deterrence (p. 238).

Second, *immediate* deterrence is a specific, active and explicit form characterized by urgency. In this case, there exist an identifiable adversary and a foreseeable action that requires deterrence in time of crisis or emergency (Freedman, 2004, pp. 40-41; Till, 2013, p. 238).

Immediate deterrence, “concerns the relationship between opposing states where at least one side is seriously considering an attack while the other is mounting a threat of retaliation in order to prevent it” (P. M. Morgan, 1983, p. 30). Speed and strategic mobility are advantageous characteristics of naval power when establishing immediate deterrence towards specific threats. The acuteness of immediate deterrence implies that general deterrence is frail or has failed (Till, 2013, p. 238).

There are two ways states influence the cost-benefit calculus, *denial* and *punishment*.

Punishment is coercive and threatens to impose cost by overwhelming retaliation against an attacking adversary. It aims at providing powerful incentives for an opponent to choose a particular path. Denial on the other hand, is essentially about controlling and denying an opponent strategic options or benefits. This can be obstructing military or political ends. Denial offers a more reliable strategy because it offers control by denying the enemy the benefit of choice. It may however come at a greater enforcement cost than punishment, which is the reason NATO chose nuclear punishment over conventional denial for deterrence during the Cold War (Freedman, 2004, pp. 36-40).

Deterrence hinges upon *capable* and *credible* threats. A *capable* threat is a threat convincing the opponent that he will be better off if the threat does not become action. In other words the capabilities to support the threat. A state facing a capable threat therefore prefers the status quo

to conflict. A *credible* threat has to be believable, by displaying the *will* to enforce a threat. States that prefer fight to surrender possess credibility in their threat, and those who back down do not. It is essentially about exhibiting implementation-force and commitment to threats, and having the adversary buying it. As the defender aims at being credible, it is really the perception of the target that determines credibility. Perception is as such a matter of successfully getting intentions across, which highlights the importance communications and posture has to credibility (P. M. Morgan, 2003, pp. 15-16; Quackenbush, 2010, p. 64).

Credibility has historically been one of two central concerns in deterrence practice and theory. In addition to getting the right message across, bluffing regarding military capabilities became a way of falsely enhancing deterrence. Both the Soviet Union and USA went this way during the Cold War. As surveillance capabilities became better, it became increasingly difficult to bluff, closing the gap between actual capabilities and perception. The other central concern to deterrence theory and practice is crisis stability (P. M. Morgan, 2003, pp. 15-17).

3.2 Crisis Stability

Crisis stability can according to Forrest E. Morgan be described as, “the degree to which mutual deterrence between adversaries can hold in confrontation”. Crisis stability does not imply that crises are infrequent or impossible, but when a crisis occur the mechanisms of the system does not deepen the crisis. Rather it prevents escalation to extreme levels of violence, and offers a safe return to status quo (Langlois, 1991, p. 801; Miles, 2016, p. 425; F. E. Morgan, 2013, p. xiii).

To achieve stability, deterrence needs to be mutual. Mutual deterrence exist, not due to military balance between two sides, but because of stability in the relationship (Schelling, 1980, p. 232). Stability in general terms relates to how a system responds when challenged, it generally exist in one of two conditions, *stable* or *unstable* condition (Jervis, 1993, p. 250). Crisis instability emerge as soon one of the parties starts considering attack as a viable option (F. E. Morgan, 2013, p. 17).

Stability is subject to *offense-defence* balance and their influence on the *security dilemma*. When the offensive has the advantage, offensive actions towards the enemy is more likely to win you the war than defensive actions. Contrary, when defence has the advantage, then defensive actions prevail over offensive (Jervis, 1978, p. 187). Offensive actions require offensive capabilities and vice versa. Thus is it the force structure, i.e. weapons capabilities and policies that label forces as offensive or defensive. Increase in offensive and defensive

force capabilities can both cause instability. Even if intended at maintaining status quo, added capabilities can inadvertently decrease security of others, causing a security dilemma to arise (Jervis, 1993, p. 243). Offensive capabilities are however more likely to propel instability and cause a security dilemma than defensive ones. (Jervis, 1978, p. 188).

The security dilemma drives states into a spiralling contest attempting to increase their own and decrease other's security (Jervis, 1978, p. 169). The spiral model of conflict has a dynamic action-reaction relationship where the inability to interpret each other's behaviour magnify and accelerate conflict (Jervis, 1993, pp. 243-244). Even though there is no intent of attack, efforts to maintain status quo are mistaken for expansion, thus heightening tensions in fear of aggression (Jervis, 1978, p. 181). Of particular interest in this dynamic is the *prisoner's dilemma*, a game theory explaining how defection becomes the rational choice over cooperation. The configuration of payoffs provides strong incentives to choose strategies that yield less desirable outcome for both participants, than choosing a cooperative strategy. The least preferable outcome is the one where the opponent defects first (Schelling, 1980, p. 214).

The dynamics of prisoner's dilemma becomes apparent if one of the participants possess the capability to conduct a surprise attack, and by doing so seemingly provide for advantages on the battlefield. If both adversaries have first-strike capabilities, then a pre-emptive strategy to avoid being attacked may appear advantageous (Jervis, 1993, p. 242; Miles, 2016, p. 426).

The dynamics is explained by Thomas Schelling, "He was about to kill me in self-defence, so I had to kill him in self-defense" Or, "He thinking I was about to kill him in self-defense, was about to kill me in self-defense, so I had to kill him in self-defense" (Schelling, 1980, p. 232).

Reassurance provides on the other hand measures to improve Crisis stability. By arms control, and showing the adversary that the state will refrain from attack, despite having credible and capable deterrent measures the stability can improve (Jervis, 1993, p. 244). Likewise, conditions that deter attack or convince decision makers that successful attack is more difficult than successful defence, contribute to stability. While conditions inviting to attack with a greater belief that attack is easier than defence, erodes stability (F. E. Morgan, 2013, pp. 24-25). Crisis stability is present as long as neither side's weapons present vulnerabilities that could attract a pre-emptive strike, and that initiating conflict by surprise attack does not justify the cost-risk calculus. Limiting each side's vulnerabilities to surprise attack, and possessing survivable second strike capabilities assuring retaliatory response, and balancing

threats with restraint are as such stabilizing factors removing the incentives for a first strike (Miles, 2016, p. 426; F. E. Morgan, 2013, p. xiii). Crisis stability is consequently a result of how states posture and structure military forces, without provoking war (F. E. Morgan, 2013).

3.3 Maritime Airpower

Understanding the link between aircraft characteristics explained in airpower theory and the rationale for maritime application is fundamental for understanding *maritime airpower*. First, a look at the general characteristics of aircraft and the advantages and limitations of airpower. Second, a definition of maritime airpower appropriate for this study. Third, the aspects of seapower that are relevant for this study. Fourth and last, an examination of core capabilities and the specialized roles for maritime airpower.

The core attributes of airpower are speed, reach and height. Airpower sets itself apart from land- and seapower by being unimpeded by terrain. Air covers the entire earth's surface, oceans cover just two thirds and landmass the remaining third, airpower consequently possess the ability to project power globally. Speed enables the exploitation of time, providing control of tempo. By enjoying unparalleled reach, airpower covers large distances, including operations deep into the territory of enemies. The advantage of height provides a vantage point only surpassed by space based platforms. The inherent qualities of speed, reach and height offers ubiquity, agility and concentration of force, a combination that provides a high degree of flexibility, responsiveness and scalability (NATO, 2016a).

The most significant limitations to airpower are impermanency, payload limitations and relative vulnerability. First, payload limits the fuel, and limited fuel means impermanency. Air operations deal with impermanency by sequencing operations in time and space, which affects force concentration and sustainment of air operations over time since air resources are in high demand. Second, payload limitations moreover has consequences for weapons, sensors and crew carried. Weight restrictions to stores and sensors consequently limit the flexibility to change roles during a mission. Hence will low payload aircraft largely depend on ground stops for reconfiguration. Third, air assets are relatively vulnerable as they come lightly armoured and depend on sophisticated technology that require comprehensive infrastructure and logistics support to sustain operations. Circumnavigating vulnerability often comes with limitations on tactics and operational concepts, restricting options available for decision makers (NATO, 2016a).

NATO doctrine highlights Counter-air, Attack, Air mobility, JISR (Joint Intelligence Reconnaissance & Surveillance) and personnel recovery as core capabilities and concepts specific to airpower (NATO, 2016a). Although airpower concepts to a certain degree has applicability in maritime operations, airpower theory is inadequate for discussing maritime airpower, and consequently a definition of maritime airpower theory is required.

Dyndal (2015) discusses in his article *A theoretical framework of Maritime Air Power* that the understanding of maritime airpower among scholars and military, span over a range different definitions. Maritime airpower should include ‘naval airpower’ also known as ‘organic aircraft’ a commonly used term for *sea-based aviation*, be it carrier based combat aircraft, unmanned aerial vehicles (UAVs) or helicopters operating from surface combatant ships. It should also include land-based airpower operating in the maritime domain. Maritime airpower theory should be founded on the application of airpower for achieving maritime objectives. Not whether air assets are organic or land-based, commanded or administered by naval or air forces (p. 111).

A cross-service definition for maritime airpower used in this study is, “Maritime air power constitutes the parts of air power, which are being applied in the maritime theatre to fulfil maritime objectives, as well as achieving the necessary degree of air control for maritime operations within the area of interest” (Dyndal, 2015, p. 112).

There are several maritime objectives in seapower theory, for this study there are two in particular that requires examination, sea control and sea denial.

Sea Control is an absolute term and a clearly definable and achievable objective for military commanders. Allied Joint Publication 3.3.3 Air Maritime Coordination states that, “Sea control allows the use of the sea in specified areas and for specified periods of time” (NATO, 2014). Achieving sea control requires the demonstration or credible threat of force, and relies on naval forces maintaining capabilities and exercising control in three dimensions: above, at and under the surface of the sea. Sea control secures own use of the sea and littoral areas, at the same time preventing enemy the effective use. Protection of SLOC by convoying and escort provides an example of local sea control. Sea control consists of two fundamental dimensions, *denying* the opponent from effectively using the sea for his purpose, while *safeguarding* own military as well as commercial operations (Dyndal, 2015, pp. 114-115; NATO, 2014; Till, 2013, pp. 150-151).

Sea Denial is to prevent the enemy from using a defined area where one is unable to secure sea control for own use, by choice or lack of capability. It is both an *alternative* and a

complement to sea control. The Russian Bastion Defence is an illustrating example of a complimentary strategy, with the ambition of sea control in the Barents Sea, and extending sea denial into the Norwegian Sea and Greenland-Iceland-United Kingdom (GIUK) gap as a perimeter defence (Ekspertgruppen for Forsvaret av Norge, 2015, p. 20; NATO, 2014).

China employs a similar concept based on Gorshkov's concentric layered defence that the Americans call Anti Access/Area Denial (A2/AD). Weapons and technology developments for the past decades, especially submarines with long-range precision guided weapons and long-range air defence systems have made denial strategies increasingly influential and challenging to face in contemporary warfare. The implications are that smaller maritime states is gaining strategic impact by denial strategies, enabling the ability to obstruct allied maritime operations by placing unacceptable risk to surface units. For Norway the significance is that as technology favours the offensive and as weapons ranges increase, time and space is compressed, making the strategic depth to the defence of Norway increasingly challenging (Dyndal, 2015, pp. 115, 122; Ekspertgruppen for Forsvaret av Norge, 2015, pp. 29, 34; Till, 2013, pp. 152-153).

Considering all three dimensions air, surface and subsurface warfare in relation to the maritime commander's sea control or sea denial objectives, a wide range of core capabilities and specialized roles for maritime airpower exist. As the aim of this study is to research P-8 and the transatlantic partnership and deal with the threat posed by Russian submarines, only some of the specialized roles apply. Subsequently 'Information Exploitation', and 'Subsurface Warfare' are the relevant core capabilities of maritime airpower Dyndal (Dyndal, 2015, pp. 120-126). Derived from the two core capabilities is ISR and ASW as the specialized roles for MPA. ISR is in the context of this study, linked to ASW in broad surveillance, like surveillance of piers, submarine specific Command & Control infrastructures etc., hence an integrated part of *theatre wide* ASW efforts.

ASW are operations with the objective of denying the enemy the effective use of submarines. It includes search, localization, classification, track, attack, avoidance, deterrence, neutralization or the destruction of opposing submarines (Forsvaret, 2015, p. 213; NATO, 2017a). ASW operations are preferably conducted in a coordinated effort between land- and sea-based aircraft, surface ships and friendly submarines. There are two overall strategies available to conduct ASW, these are *defensive* and *offensive* ASW operations (Dyndal, 2015, p. 122; NATO, 2014).

Defensive ASW are operations against an enemy submarine that has tactical freedom of operation in an area. Typically in relation to convoying or escort operations, denying the enemy offensive operations against own forces. Speed and endurance makes MPA primary assets for countering and prosecuting a submarine enjoying freedom of operation. Defensive ASW is as such *reactive* operations, requiring joint coordinated efforts between aircraft, surface ships and attack submarines. The ASW capable aircraft contribution to this *triad* of platforms enable the commander to protect the force by ‘defence in depth’. It is however platform intensive, complex and requires close coordination among participants in three dimensions (Dyndal, 2015, p. 122; NATO, 2014).

Offensive ASW are operations that *proactively* aim at denying the submarine freedom of action. Typical courses of actions are blocking off choke points, fencing a submarine from reaching the open ocean or attacking it prior to reaching waters that allow submerged operations. The primary objective of offensive ASW is to neutralize or control the submarine before it becomes a threat. The premise for offensive ASW is the ability to find and track enemy submarines at will, knowing their location at all times and consequently achieving sea control, thus termed ‘hold at risk’. A conduct of ASW, that has been peripheral to maritime strategy and concepts of warfare, and existed merely as a part of intelligence driven and secretive tracking of Russian SSBNs during the Cold War. Hold at risk, similar to defensive ASW, relied on coordinated operations between platforms, in this case MPA’s, intelligence ships, hunter submarines and passive arrays of underwater hydrophone listening posts – Sound-Underwater Surveillance (SOSUS) (Dyndal, 2015, p. 122; NATO, 2014).

Intelligence, Surveillance & Reconnaissance provides decision makers with actionable information. ISR is an integrated intelligence and military set of capabilities that ensures the collection, processing, exploitation and dissemination of information directly supporting operations through planning and execution. By establishing understanding of potential crisis points, ISR supports the strategic level by enhancing situational awareness and thus the quality of decisions both at the military and political level. At the operational and tactical level, ISR allows the observation of an adversary’s posture and actions, creating an understanding of his strengths, vulnerabilities and dependencies (NATO, 2016a).

Intelligence is in this broad context described as the product derived from collecting and processing information on the environment, capabilities and intentions of others. For this particular study the collection disciplines of ACINT (Acoustic Intelligence), SIGINT (Signals

Intelligence) and IMINT (Imagery Intelligence) are the most important to know, providing technical, quantitative assessments and detailed knowledge on adversary force posture capabilities, vulnerabilities, doctrine and intentions (NATO, 2016a).

Surveillance is systematic observation, not towards a specific target, but generally in areas of interest over prolonged periods. The objective of surveillance efforts is to establish an awareness of what can be construed as ‘the normal’ situation, and by detecting changes in threat due to activities or initiatives provide ‘indications and warnings’ (NATO, 2016a).

Reconnaissance are focused efforts to obtain information on specific activities, resources or capabilities of an adversary, or the environmental characteristics in an area of interest. It is generally time constrained and time critical, as reconnaissance provides other tasked assets with mission critical information (NATO, 2016).

This chapter offers a theoretical framework for the analysis section. Deterrence and crisis stability on one hand provide definitions and mechanisms influential to maritime strategy and security policy. Airpower characteristics, seapower objectives and consequently the roles of maritime airpower provides a fundament for discussing operational significance of the P-8 and the transatlantic partnership.

Part III – Analysis

Chapter 4. Russia in the High North and Norwegian Security Policy

Chapter four discusses Russian strategic ambitions, the importance of the North Atlantic, their submarine force and capabilities. It further looks at Norwegian security policy and implications of allied partnership, as well as the most relevant aspects of the Norwegian Armed Forces Long Term Plan (LTP). It starts by discussing Russian strategy and maritime ambitions in the North Atlantic. The comprehension of strategy and ambitions provides a fundamental understanding of the potential for conflict in this region. Then, I examine the significance of Russian submarine capabilities, as well as the Bastion Defence Concept in the event of a conflict. At the end, I look at Norwegian security policy, with emphasis on deterrence and reassurance towards Russia within the NATO alliance.

4.1 Russia

Russia is currently a resurgent state with considerable great power ambitions that expresses strong anti-western views. As Russia seeks to assert its role and influence on the international arena it exercises instruments of political and military power to obstruct Western security and economy cooperation with prior Soviet satellite states. Although the development of Russian military capabilities is largely predictable, they possess the ability to threaten Norway and allied security. When considering Russia's grand strategy, aggressive behaviour and expressed hostility towards the West, there is no reason being overly optimistic about Kremlins intent. Moreover, as the West worries about Russian intentions and increasingly destabilizing capabilities, the Russian authorities consider the strengthening of NATO military capabilities close to Russian spheres of interest its primary threat. Resulting in a deepening mistrust between the two (Ekspertgruppen for Forsvaret av Norge, 2015, pp. 16-17; Payne & Foster, 2017, pp. 3-5).

Although the strategic situation may resemble that of the Cold War, *strategic stability* has suffered erosion, and the risk of uncontrollable escalation is consequently increased. This relates to two significant changes in Russian grand strategy and military doctrine after the Cold War.

First, since crisis and conflict are logical consequences of Putin's expansionist grand strategy, the current situation lacks the stabilizing rules of conduct that was present during the Cold war (Hamre & Conley, 2016, p. 44; Payne & Foster, 2017, p. 14). Norwegian Intelligence

Service contributes to this view, by saying that the Russian threat perception involves viewing ‘conflict’ as something constantly going on between irreconcilable systems of governance. Seeing how Russia is applying non-military or hybrid means in conjunction with traditional military force, the distinction between civilian and military, as well as peace and conflict blurs. The sum of changes in Russian doctrine points to a ‘new normal’ in the strategic situation (Grandhagen, 2015, p. 45).

Second, Moscow intends to enforce its expansionist moves with threat of nuclear first-use. Russia’s current inferiority to the US in conventional military force gave birth to the doctrine of ‘escalate to de-escalate’. A strategy designed to stop the enemy from expanding a conventional conflict, imposition cost by using non-strategic nuclear weapons (NSNW). As Russia has a broad range of dual-capability delivery missile systems, i.e. the capability to deliver both nuclear and conventional payloads, the distinction between conventional and nuclear attack becomes difficult to identify in the early stages of an attack. Thus risking unwarranted escalation and a regional crisis developing into a strategic conflict (Payne & Foster, 2017, pp. 3-4; Zysk, 2017a, p. 323).

Moreover, recent Russian doctrine increasingly emphasises conventional precision-guided weapons, reflecting that most military threats facing Moscow are non-nuclear. Still, the Russian doctrine has not abandoned NSNW, and the weapons inventory remains in substantial numbers counting 760 warheads in the navy alone (Kristensen & Norris, 2017, p. 123; Sergunin & Konyshchev, 2017, p. 174). Payne & Foster conclude that NSNW plays a major role in the coercion of NATO, giving Russia freedom to pursue its expansionist goals. The lack of stabilizing rules and risk of unwarranted escalation thus increases the risk of strategic conflict (Payne & Foster, 2017, p. 56).

4.2 Russia in the High North and the Potential for Conflict

The High North is on the one hand of major *economic* interest to Russia. On the other, there is the *military strategic* significance the region has to Russia’s great power ambitions.

Consequently is it within these perspectives the potential for conflict is most likely to occur.

One, the economic potential represented by this region, although much of it cannot be realised yet, is strongly influential on Russian thinking and planning (Sergunin & Konyshchev, 2017, p. 175; Tamnes, 2016, p. 21). The Russian government aims at developing the Arctic as its primary foundation for natural resources within 2020, which is key for sustaining the great power ambition (Ekspertgruppen for Forsvaret av Norge, 2015, p. 19; Sergunin & Konyshchev,

2018, pp. 41-42). The considerable modernization and restructuring of Russian military forces, with expanded military presence in the Arctic archipelagos of Franz Josef Land, reopened military bases and new infrastructures along with the creation of Arctic brigades and command structures, could consequently be explained by economic developments in the Arctic (Etterretningstjenesten, 2018, p. 21; Hamre & Conley, 2016, pp. 46-47).

Although concerns over a regional conflict between Russia and Norway related to petroleum resources have been voiced, it does not seem likely to be a cause for less stable region.

Russia's dependency on Western funds, technology and expertise for exploitation, combined with common interests in Search and Rescue (SAR), environmental protection and fishery resource management creates a strong foundation for cooperation with Norway.

Institutionalized soft power cooperation further strengthens stability between the two. Both Norway and Russia has agreed to solve any contradictory claims through the principals of United Nations Convention on the Law of the Seas (UNCLOS) and United Nations Commission on the limits of the Continental Shelf (UNCLCS) (Ekspertgruppen for Forsvaret av Norge, 2015, pp. 19, 21; Sergunin & Konyshev, 2018, p. 54).

Another issue highlighted as a potential challenge to regional or bilateral stability between Russia and Norway is Svalbard. The Svalbard treaty of 1920 provided Norway sovereignty over the Spitsbergen archipelago that since 1925 has been a part of the Norwegian kingdom. Several signatory states dispute jurisdiction and enforcement of Norway's sovereign rights related to fishery around Svalbard. Russia has since 2004 been sending the Northern Fleet on regular patrols to the area, as an objection to the Norwegian stance (Sergunin & Konyshev, 2017, pp. 178-179). Although a potential source of regional instability, it is more likely that Svalbard becomes an *arena* of conflict of military strategic character rather than the *origin*. Should a crisis spiral out of control and a conflict become a reality, a Russian foothold on the archipelago to establish control and deny NATO military use of the geography could be anticipated (Ekspertgruppen for Forsvaret av Norge, 2015, pp. 21-22).

Two, the High North is of particular military strategic significance to Russia. Russian strategic outlook determines USA as Russia's peer adversary and maintains that American and allied activity in the North is an attempt at western expansion, destabilising regional and strategic stability (Etterretningstjenesten, 2018, p. 21; Sergunin & Konyshev, 2017, p. 174). The containment strategy of the Cold War is consequently back in the Russian doctrine, and at the core lies strategic deterrence. Hence are Russia's strategic submarines and the

protection of these Moscow's highest priority and the primary rationale for the geostrategic relevance of the High North (Etterretningstjenesten, 2018, p. 21). The strategic submarines as one of the three legs in Russia's nuclear triad, has primacy in Russia's defence strategy, not only as a key element of Russian security, it also holds a symbolic value as a guarantor of Russian great power status (Sergunin & Konyshev, 2018, p. 144).

The Russian strategic deterrent has two major threat directions to consider for its defence in the High North. Coming from the north is the threat of strategic missiles and strategic flights from North America across the North Pole towards Russia. The other from the west, through the North Atlantic, GIUK gap and the Norwegian Sea, constitutes the maritime threat from USA and NATO. The Norwegian assessment of 2015 determines that the potential for a military conflict between Russia and the Alliance in this region is likely due to spillover effects from escalations of armed conflict in other regions, and not caused by instability in the High North. The assessment from 2015 consequently viewed the High North and Arctic as relatively stable (Ekspertgruppen for Forsvaret av Norge, 2015).

The regional stability has however trended negatively since 2015, as Russia has conducted a series of mock attacks against Norwegian military facilities and repeatedly jammed GPS signals in Norway's northernmost county Finnmark (Nilsen, 2018). As the West is picking up the pace with Russia in maritime deterrence, a call for a forward and competitive strategy for NATO and the US could emerge as an offensive posture on the Northern flank, similar to that of the 'Forward Maritime Strategy of the 1980's'. A strategy that transitioned western ASW strategy from defensive containment to an offensive *hold at risk* strategy, for chasing down and offer pre-emptive strike opportunity on Soviet strategic submarines. Major concerns was voiced however, as an aggressive forward presence in the Bastion could threaten the Soviet Union into a security dilemma. In which a pre-emptive strike remained a viable option for Russian self-defence, and consequently erode crisis stability (Fanjoy, 1990, pp. 5-10; Tamnes, 2018, pp. 16-21; Wills, 2018).

Former Commander-in-Chief of the Soviet Navy, Admiral Sergey Gorshkov the inventor of modern Soviet Naval doctrine, argued that the combination of mobility, concealment, global reach and high striking power made the submarine a strategic resource for armed forces and maritime power. For military-economic reasons the submarine was the most effective way the Soviet Union could gain parity with the substantially larger surface fleet of the West after World War II. According to Gorshkov, all the main factors characterizing the power of a navy

is inherently present in nuclear submarines, a view that remains central in Russian maritime strategy today (Gorshkov, 1979, p. 192).

Although not in any terms near Cold war levels in quantity, the Northern Fleet is growing in capability. As Russia's largest and most powerful naval force, it is currently in a state of transition going from quantity to quality. As Russia modernizes its navy and now operates in a tempo not seen since the Cold War, submarines remain the capital ships of the Russian Navy and enjoys the highest priority in developing technology and capability (Office of Naval Intelligence, 2015, pp. 15-17; Olsen, 2017, p. 5).

The Northern Fleet currently houses a range of submarines and underwater capabilities categorized in three forces, Ballistic Missile Submarines (SSBNs), Multi-purpose Submarines (SSN/SSGN/SSK) and Special Mission Submarines (SSAN).

First, the backbone of the Russian strategic deterrent and the core of the Northern Fleet are the SSBNs (Hicks et al., 2016, p. 9; Tamnes, 2016, pp. 23-24). Two classes of submarines constitute the Russian sea based deterrent, namely the legacy Delta IV class and the new fourth generation Borei class, or Dolgorukiy in NATO language. The Delta IV SSBNs will constitute the mainstay of the strategic submarines until mid-2020s carrying the SS-N-23 Sineva SLBM (Submarine Launched Ballistic Missile). Upgrades to these missiles warheads will keep six Delta IV submarine in service until 2030 (Kristensen & Norris, 2017, p. 120; Payne & Foster, 2017, p. 52; Sergunin & Konyshev, 2017, p. 181).

The Borei came into service in 2013 with three hulls currently operational, one in the Northern Fleet and two in the Pacific. A subsequent and improved design will be the next step, with a planned delivery of in total eleven Borei II/Borei A in addition to the initial three, bringing the total up to fourteen. Each of the initial Borei designs are capable of carrying 16 SS-N-32 Bulava SLBMs with a range of 8.500 km, whereas the improved Borei II increases the number of Bulava's to 20. Plans to develop a Borei III design has however been scrapped due to unsatisfactory economic feasibility, according to Alexey Rakhmanov, the head of Russia's United Shipbuilding Corporation (Gady, 2018). In addition to the Bulava, the Borei also carries a variety of torpedoes and cruise missiles for multipurpose missions (Office of Naval Intelligence, 2015, pp. 17-18; Sergunin & Konyshev, 2017, p. 181). The Borei is assessed to be slightly quieter than the Akula-class SSN and comparable to the American Ohio-class in terms of mission capabilities, thus a very capable weapons system (Hicks et al., 2016, p. 14).

Second, the Northern Fleet claimed in 2016 to have 23 multi-purpose and attack-submarines in active service, and about half of those operational at any given time. Legacy submarines from the Cold War include the Kilo class SSK (Conventional Submarine) and four classes of SSNs (Nuclear powered attack submarine) and SSGNs (Nuclear powered guided missile submarine).

On the one hand, there is the legacy Akula, Sierra, Victor and Oscar submarines, although conceived during the Cold War they still boast considerable capabilities and comes armed with conventional and nuclear torpedoes and missiles. Providing for Russian sea denial and sea control operations in the North Atlantic in defence of the SSBNs, and denial operations to obstruct NATO freedom of movement across the Atlantic. On the other hand, there is the Severodvinsk, introduced into service in the Northern Fleet in 2013. The Severodvinsk is a multipurpose nuclear attack submarine armed with a wide range of conventional and nuclear armament, including cruise missiles for targets at sea and ashore, and weapons for ASW. The Russian Navy plans a procurement of eight to ten of the fourth generation submarine to replace current SSNs and SSGNs. The tremendously expensive submarine is close to as quiet as contemporary American SSNs, and thought to be equal or even better in some aspects of its design, and consequently seen as a very challenging threat to NATO (Hicks et al., 2016, pp. 9-11; Office of Naval Intelligence, 2015, p. 18; Tamnes, 2016, pp. 24-25).

Third, the Russian Navy has a fleet of auxiliary submarines operated by the Directorate for Deep Sea Research (GUGI). Although special purpose operations is clouded in secrecy, it is suggested that The Northern Fleet has as many as nine nuclear powered special mission submarines (SSAN) in total, although it is unclear on how many are actually operational. The special mission submarines, including tele-operated and unmanned underwater vehicles (UUVs) are capable of manipulating objects on the sea floor. These capabilities and subsurface activities might indicate that Russia intends to intercept sensitive communications, destroy and exploit undersea infrastructure such as transatlantic cables, or place acoustic intelligence capabilities near sensitive Western military infrastructure (Hicks et al., 2016) (Hicks et al., 2016, p. 12). These submarines also contribute to Russia's Arctic research, performing geophysical and hydrographical surveys supporting Russian claims towards the continental shelf (Sergunin & Konyshev, 2017, p. 180).

Introduction of long-range precision guided missiles represent perhaps the most profound change of offensive capabilities for the Russian Armed Forces. For the Russian Navy and

consequently the Northern Fleet, the most notable is the introduction of the Kalibr range of missiles. The system includes a land-attack cruise missile (LACM) the SS-N-30 or 3M-14 (Russian designator), an anti-shipping cruise missile (ASCM), the SS-N-27 or 3M-54 and an ASW missile, the 91R. All missiles in the Kalibr family comes with vertical or inclined launch capability, it can launch from ground launchers as well as torpedo tubes.



Figure 1: Range of Kalibr cruise missiles. Bright red color is land-attack, and dark red is anti-ship missiles. Note that the various size of range radius' are because of the Mercator map projection, which enlarges objects closer to the poles (CSIS, 2018).

The versatility implies that the missile likely integrates on almost any platform, reflected in the wide use of Kalibr on smaller Russian naval surface ships. The LACM and ASCM have salvo and waypoint capabilities, which means they are adapted to a wide variety of attack modes, complicating defensive measures for the target (McDermott & Bukkvoll, 2017, p. 13; Office of Naval Intelligence, 2015, p. 34).

The Northern Fleet submarines and the introduction of long-range precision guided and Kalibr missiles in particular, provide a significant boost to Russian defensive and offensive capabilities. On the one hand, the defensive capabilities provided by the missiles could increase the defensive capabilities of Russia's sea based strategic deterrence. The Bastion Defence Concept conceived during the Cold War introduced layered defence in the defence of Russian SSNBs (McDermott & Bukkvoll, 2017, p. 11).

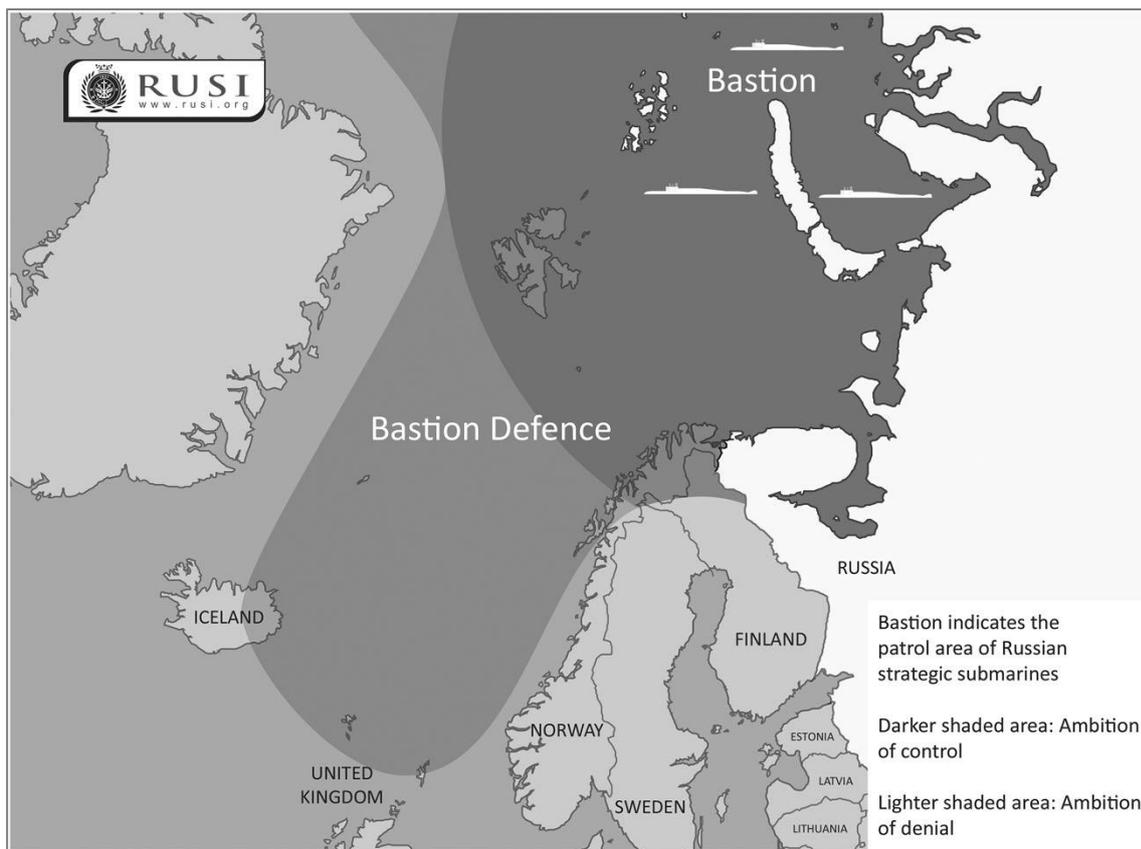


Figure 2: The Reach of the Russian 'Bastion' Defence Concept (RUSI, 2016).

Reintroduced into Russian naval strategy and essentially the same concept as during the Cold War, the Bastion Defence today composes of aircraft, surface ships, fixed installations and submarines, which aims at establishing sea control and freedom of movement for Russian SSBNs inside the extended Barents Sea region. The objectives of the SSNs are to establish sea denial operations defending the Bastion, blunting or eliminating an attack coming through the Norwegian Sea and GIUK (Tamnes, 2016, pp. 9-11). The extensive range and high precision of the ASCM enables Russian SSNs to threaten distant targets in the North Atlantic simultaneous to the protection of the Bastion, and by doing so interdict NATO SLOC and maritime operations at the North Atlantic.

Furthermore, the LACM provides the capability to strike crucial harbour facilities and other bridgeheads for the transatlantic link, Command & Control and other infrastructure threatening NATO military operations and collective defence of Norway and its allies. Russia could consequently hold the entire European theatre at risk, as well as pose a threat to the US mainland (McDermott & Bukkvoll, 2017, pp. 11, 13-14; Williams, 2018). On the other hand the offensive capabilities represented by global reach, speed and concealed nature of a nuclear submarine combined with the Kalibr LACM, constitute a powerful and flexible first strike

capability for power projection, signalling and coercion. Both Russian and Western scholars envisage that military force becomes more ‘normal’ and usable as a political instrument for achieving foreign policy goals, thus lowering the threshold for coercion under the threat of punishment by long-range precision strike. As these weapons lower the threshold for coercive strategies, it opens the possibility for Russia to coerce by punitive measures pursuing regional or local political interests. For Russia however the challenge is to provide for a large enough inventory of missiles to have a credible capability, as both cost and production rate is challenging (McDermott & Bukkvoll, 2017, pp. 30-33).

Since Russian submarines are able to operate covertly, launch detection and early warning become particularly difficult. Furthermore, with the advent of long-range precision strike manifested in cruise missiles in particular, denial strategies by defensive measures have become challenging. Point defence systems could provide for defence of a smaller geographic area, concerning theatre or wide-area missile defence on the other hand, the target list is just too long for denial. Which implies that deterrence strategies concerning long-range precision guided missiles increasingly emphasises punishment and pre-emptive strike as viable ways of defence. The challenge with punishment and pre-emptive strategies however is that it erodes stability unless carefully implemented into a defence strategy (Askvik, 2015, pp. 47-54; Karako, Payne, Roberts, Obering III, & Todorov, 2017).

4.3 Norwegian Security Policy

Norway’s geostrategic proximity to Russia and the rich energy and fishery resources in the High North are formative of Norwegian security and defence policy. The principles of Norway’s security policy remain largely the same as during the Cold War, balancing the need for security by integration in NATO’s collective defence, while seeking to maintain low tension by way of a policy of reassurance towards Russia (Ekspertgruppen for Forsvaret av Norge, 2015, pp. 14-19).

Most notable in Norway’s *reassurance* policy are the restraints on NATO presence and activities in Norway and the High North. For this study, of particular interest are Norway’s base policy, precluding permanent stationing of allied combat forces during peacetime, and restraints on flights from Norwegian bases into the Barents Sea. The restrictions apply to this date, with some modifications. Restrictions have throughout and after the Cold War been subject to criticism for weakening the *defence* of Norway, but in terms of security policy, they have been considered a success (Tamnes, 2016, p. 15; Tamnes & Eriksen, 1999).

The *integration* into the Alliance is mirrored in measures such as the pre-positioning of material for the reception of allied reinforcements, and Norway's contributions to US intelligence and early warning. Submarine surveillance in the High North has been a highly appraised contribution, where the P-3 Orion has played an essential role. Bilateral surveillance and intelligence agreements with the US, has provided Norway with technology for surveillance on favourable terms, in exchange for intelligence. The P-3 Orion enabled Norway to cover the northern parts of the Norwegian Sea and the Barents Sea, while other NATO partners, in particular the US and the UK, could concentrate further west (Tamnes, 2016, pp. 15-17).

The Norwegian defence concept embodied in the current long-term defence plan underscores credible deterrence as the foundation of Norwegian security. Norway has acquired a portfolio of strategic or deterrent capabilities, notably submarines, F-35 aircraft and long-range precision guided weapons that can raise the threshold for Russian aggression and prevent escalation of crises. In the event Russia contemplates war with Norway, it will have to consider NATO's full military potential in its cost calculus. This is the cornerstone of a credible deterrence and defence for Norway. Given the short response times, the ability to provide a seamless escalation is central. Hence, integrating NATO and the US in the defence of Norway is fundamental. The concept rests on the ability to establish a situational awareness and provide intelligence, in particular maritime surveillance providing for transparency and predictability (Regjeringen, 2016a, p. 18; Tamnes, 2015, pp. 390-391).

The US remains the central contributor for reinforcement of Norway in the event of war. Procurement of American fighter aircraft and maritime surveillance aircraft for the Norwegian Armed Forces strengthens the bilateral security policy link. Cooperative opportunities will consequently arise, which Norway should exploit for further integration. Prepared arrangements, training, exercises and operations are some examples of opportunities for further integration. Moreover, Norway's choice to continue its maritime surveillance contribution facilitated by American technology could deepen the integration of what is considered an extremely strong bilateral relationship (Ekspertgruppen for Forsvaret av Norge, 2015, p. 67; Tamnes, 2018, p. 17).

4.4 Summary

Russia's assertive and expansionist conduct, subversive grand strategy and non-strategic nuclear weapons doctrine point to a new normal in the overall geopolitical relationship between Russia and NATO, where strategic stability has weakened in comparison to the Cold War. Russia's military doctrine and modernization of capabilities in the Northern Fleet along with a more aggressive posture and conduct also indicate that the security temperature between Russia and NATO in the High North and the North Atlantic is falling.

However, a military crisis between Russia and NATO in other regions causing a spillover effect is the most likely scenario for initiating a major military conflict in the High North. The prospects of a bilateral military conflict resulting from disputes over economic resources or territories in the Arctic are not very likely at this stage. In the event of a military conflict, Russia will probably give priority to protecting its strategic submarines, the backbone of Russia's strategic deterrence and defence, under the Bastion Defence Concept.

Russian attack and multipurpose submarines are key in defending the SSBN Bastion, and will most likely conduct interdict operations against NATO SLOC and the transatlantic link. With the Kalibr missile systems, Russia is able to defend the Bastion with more depth and flexibility, and threaten the transatlantic link from well outside the horizon of a transiting NATO force. Of equal importance is the land-attack capability of the Kalibr missiles that enables Russia to hold the European and US mainland at risk, threatening NATO land and air components. Moreover, Kalibr missiles provides Russia with coercive instruments. Missile defence systems do not currently provide any wide-area capability to deny long-range precision guided cruise missile attacks, pre-emptive strategies consequently appear as the remaining deterrent measure. These developments cause a security dilemma for NATO, consequently rising concerns regarding crisis stability.

The relationship to Russia is formative in Norwegian defence policy and will remain so. NATO constitutes the core of Norway's deterrence, while reassurance remains fundamental in Norway's efforts to maintain low tension towards its more powerful neighbour. The security challenges currently posed by Russia points to a deeper Norwegian integration to NATO. The main reasons are Russia's strategic mobility, submarines and long-range precision guided missiles that constitute a compression of time and space. Norway's integration into the Alliance aims at increasing the responsiveness to emerging crises and provide for seamless escalation, which depends on intelligence and early warning.

Chapter 5. Operational Significance of the P-8 and the Trilateral Partnership

Chapter five analyses the capabilities of the new aircraft as well as the added contribution of the trilateral cooperation between the US, UK and Norway, and concludes that the P-8 provides quantitative and qualitative improvements to ASW and ISR capabilities. The quantitative improvements relate to improved sensors and aircraft design, whereas a new operations concept and network capabilities represent qualitative progress in ASW and ISR. The key operational significance of the trilateral partnership is that it will enhance collective defence by increasing the ability to sustain high-end ASW operations. The arguments and conclusions of this chapter are the basis for the analysis of deterrence and crisis stability in chapter six.

5.1 P-8 Capabilities

According to the Norwegian Government, MPAs are strategic assets that contribute to building a strong national ability to sustain situational awareness and maritime surveillance. The aircraft are essential in providing Norwegian authorities with a solid foundation for decision-making. Sustained capabilities in surveillance and ASW are also important to NATO and close allies. In the bilateral relationship with USA, the Norwegian MPAs are key contributors to operational cooperation. With its modern sensors and weapons, the new MPAs represent a continuation and improvement to these abilities (Regjeringen, 2016a, p. 65).

The P-8 aircraft will represent considerable improvements in ISR and ASW capabilities. There are particularly three specific features of the Poseidon that set it significantly apart from previous MPAs, these are *presence*, *wide-area surveillance*, as well as *network capabilities*, thus subjects for further examination.

Presence is the the most pressing issue with Norway's current MPAs. Presence is a prerequisite for maintaining a leading position and competence in the High North, as it provides situational awareness for Norway and the Alliance. Range and endurance make MPAs particularly suited platforms to maintain a Norwegian presence in the High North, and consequently constitutes a strategic resource for Norway in asserting its interests. According to the Norwegian Joint Headquarters' Chief of Operations, Brigadier General Leif Sommerseth, the Norwegian MPAs presence is today well below the required level as aircraft

availability is unsatisfactory for the P-3 fleet. However, the P-8 is expected to change this (Sommerseth, 2018).

Norway acquires five Poseidon aircraft to replace four ASW capable P-3 Orion's and two DA-20 Electronic Warfare (EW) aircraft. The number of aircraft acquired could be seen as insufficient, and it could be argued that the ability to maintain a presence in the High North will not be improved or even sustained. There are however several reasons as to why the P-8 could provide a better operational availability, despite the relative reduction of airframes.

The aircraft design and logistics concept are key reasons why the P-8 could provide a higher operational availability. In addition, an open-architecture design concept allowing capability growth with less impact on aircraft downtime should have a positive impact. The P-8 design concept has capability growth in mind, allowing the aircraft to be upgraded with little downtime. Whereas previous aircraft designs, such as the P-3 and DA-20, generally require substantial rebuild and redesign for upgrades and capability developments.

Moreover, parts are increasingly unobtainable for Norwegian P-3 aircraft and prolonged periods on the ground are to be expected. The British Government assumed 70 % operational availability for the now retired Nimrod MR2. The Nimrod MR2 is somewhat comparable to the P-3s with respect to overall availability. However, the Norwegian P-3 aircraft incorporates customized sensor solutions and is a substantially smaller fleet of aircraft. Making it even more challenging to sustain, likely taking the availability further below 70 %. The P-8 on the other hand has an expected availability of 85%. The main reasons for the increased availability is that the aircraft design is based on a well proven commercial airliner that provides for high reliability, and between Norway, the UK and the US, a fleet of identical aircraft improves parts logistics by economies of scale (Aas, 2017, p. 75; A. L. Roberts, 2018).

The US Navy operates the P-8 worldwide today, and particularly its operational availability has received appraisal (Jane's, 2014, p. 4; Rogoway, 2017). The P-8 Norwegian Project Coordinator, Torgeir Aas, says that the P-8 is to double the amount of flight hours compared to the Orion, and also simultaneously maintain the operations portfolio of the EW aircraft fleet requiring one thousand flight hours a year (Aas, 2017, p. 78). The P-8 will consequently provide improved operational availability even with the relative reduction in aircraft.

As the P-8 improves operational availability, two factors are of interest regarding presence. One is responsiveness and the ability to establish an immediate presence in a crisis, which is a result of the distance to the area of interest and speed to get there. The other is area coverage, i.e. for how long and how far away the aircraft can sustain its presence, determined by aircraft endurance and range.

First, as basing for Norwegian MPAs remains a controversial issue after the Parliament chose Evenes over Andøya as the main operating base, the response time increases as Evenes is further away from the Norwegian areas of interest in the Barents Sea. On the other hand, the P-8 has a considerably higher cruise speed than the P-3. At 490 knots, the P-8 cruises almost 50 % faster than its predecessor, and a Poseidon taking off from Evenes would reach Bjørnøya almost 15 minutes before a P-3 from Andøya. The difference to Novaya Zemlya is 45 minutes in favour of the P-8 with a flight time of 1 hour and 30 minutes. During a developing crisis or situation that requires responsiveness, the Poseidon will consequently get there faster, and the change of base location has a minor impact.

Second, stated endurance for the Poseidon and Orion varies, as it depends on operational pattern, type of mission and operational altitude. However, various sources imply a maximum endurance of 10-11 hours for the Poseidon and 12-13 hours for the P-3 (A. L. Roberts, 2018). The operational implication is that more sorties could be required with the P-8 to sustain a persistent physical presence. On the other hand, with its increased speed the Poseidon will have less transit time, thus more of its total mission time on-station. In addition to its estimated range, exceeding the Orion by 15-20 % (Rogoway, 2017).

Consequently, the P-8 provides for larger surveillance areas due to increased range, and covers it quicker due to superior speed. The lesser endurance is negligible in terms of operational significance. Moreover, the Poseidons Air-to-Air refuelling (AAR) capability could extend the aircraft's range and endurance. Norway has joined NATO's Multinational Multi-Role Tanker Transport Fleet (MMF), and the rollout of Airbus A330 multi role tanker transport aircraft could help sustain persistent P-8 operations, although probably prioritized for fighter aircraft operations (Leone, 2017; NATO, 2017b). Consequently, the P-8 will provide for increased responsiveness and ability to sustain presence over a larger operational area, even without airborne refuelling. With inflight-refuelling, range and endurance obviously improve additionally.

Wide-area surveillance capability is the second merit of the P-8 aircraft that requires attention. The P-8 boasts a comparable setup of electronic and acoustic sensors as the P-3. Hence, the P-8 could be a quantitative advancement in capability due to developments in sensor technology (Håvold, 2015, p. 32). Although largely equipped with comparable sensors, the Poseidon is regarded a significant and qualitative leap forward, “a step-change in MPA capability” especially regarding ASW and ISR. (Jane's, 2014, p. 4; 2017, p. 2). The step-change represented by a different conceptual approach to MPA operations takes advantage of



Figure 3: P-8A Poseidon (Boeing, 2014).

airpower’s key attributes, height, reach and speed to improve surveillance. The wide-area surveillance capability is arguably one of two main features that qualitatively set the aircraft apart from legacy MPA, the other factor is *network capabilities*, discussed later in this chapter.

Wide-area surveillance is a central capability requirement, ushered by the US Navy that influenced the P-8 concept and design. As the Poseidon in 2004 was chosen to replace the US Navy P-3, it brought with it a High Altitude ASW (HAASW) concept that was notably different from previous approaches to MPA ASW operations. The typical ASW mission as practiced by the P-3 was low-level operations conducted at 200 feet or below. The primary reasons for the low-level ASW concept were sonobuoy and torpedo designs that at that technological stage did not have the precision to track an enemy submarine and allow a successful attack from altitude. The introduction of GPS-aided sonobuoy positioning and

GPS-guided ASW weapons changed that and enabled a High Altitude ASW concept (Håvold, 2015, p. 34).

The Multi-Static Active Coherent (MAC) is the primary wide-area *acoustic* search system of the P-8. Contrary to traditional wide-area search tactics with passive sonobuoys, MAC utilizes both active *and* passive sonobuoys in a multi-static network to extend detection ranges and enable wide-area sub-surface search, detection and localization. Although technical challenges related to processing has raised some concerns on multi-static developments, many navies see multi-static as the predominant way ahead, and the Joint Air Power Competence Centre says that it is one of the most viable future detection methods for airborne platforms (DOT&E, 2015; JAPCC, 2016, p. 41).

Passive tactics has traditionally provided MPA's with wide-area ASW search capability, and detection ranges of passive sonobuoys were during the 1970s and 1980s, commonly measured in miles. Because of a noisier oceans and quieter submarines, detection ranges are now reduced to a few hundred yards for the quietest designs, and the relative noise ratio is increasingly favouring the submarine. Simple physics imply that a halving the sensor range equates to four times as many buoys for a similar sized search area. Thus is searching for modern submarines today extremely intensive in terms of sonobuoys. Moreover, processing power places limitations on the amount of sonobuoys processed simultaneously by the P-3. Consequently is the effective search area considerably reduced, and a move away from passive tactics for wide-area ASW is becoming necessary (JAPCC, 2016, pp. 38-41).

Although MAC reinstates a wide-area ASW surveillance capability, the traditional passive search tactics comes with a couple of advantages that active and multi-static systems struggle to achieve. One is that passive systems does not emit sound, thus enables covert tracking of submarines. The other and more importantly is Acoustic Intelligence (ACINT). ACINT enables identification of individual submarine classes, even specific hulls in certain cases, based on acoustic noise signatures from the submarine. ACINT could prove particularly important for separating friend from foe in ASW. As it enables discrimination of SSBNs from SSGNs, SSNs and SSKs, it is consequently key to recognizing type of threat and identification for weapons engagement (Håvold, 2015, pp. 6, 9; JAPCC, 2016, p. 41).

A leap in the on-board processing power permits the P-8 to process up to 64 sonobuoys, twice the amount of the P-3 (Boeing, 2017). The P-8 could consequently conduct submarine

surveillance in a considerable larger area than its predecessor does. Assuming that MAC constitutes double the detection range that of traditional passive buoys. The subsurface area coverage for the P-8 becomes eight times larger than that of the P-3. The analysis might seem overly optimistic in favour of the Poseidon, but doubling the range is actually a rather conservative estimate.

Moreover, as MAC utilizes a combination of active transmitter and a network of passive sensors, it mitigates the noise ratio problem with purely passive systems, denying the submarine the ability to hide in a noisy environment. As the P-8 also has a passive capability, it enables ACINT, and with the increased search capability provided by the MAC the total surveillance and warfare capability constitute a considerable improvement. MAC will thus increase the overall effectiveness in ASW and sub-surface ISR, particularly by the augmented search capacity, widening the search area.

Furthermore, the P-8 has a wide range of *non-acoustic* sensors represented by the AN/APY10 maritime surveillance radar, MX-20HD digital electro-optical and infrared sensor (EO/IR) and the AN/ALQ-240(V)1 electronic support system (ESM) and AN/ALQ-213(V) electronic warfare management system (EWS). Although the non-acoustic sensors primarily are for surface targets, they play an important part in ASW operations as well. Characteristic for non-acoustic sensors is that, with increased altitude, they increase range and provide better coverage (Håvold, 2015, p. 34). As the P-8 boasts a high altitude concept with considerable improvements in flight characteristics, the performance of the P-8 above the surface should also be significantly better than the P-3.

Since the non-acoustic sensors are comparable variants of those on the P-3, they presumably provide quantitative improvements to the P-8. Moreover, when considering the High Altitude concept in conjunction with improved sensors, the operational significance is arguably substantial. The P-8 service ceiling is 41.000 feet. When compared to the 30.000 feet of the P-3, there is considerable advantages in non-acoustic sensor range and coverage. A simple comparison of theoretical radar range and coverage shows that an aircraft at 30.000 feet will have a maximum theoretical range of 213 nautical miles, whereas at 41.000 feet that range increases to 249 nautical miles, which is 17 % more. The difference in radar coverage is 36 % more from the higher altitude. For the ESM system, the difference is 322 versus 377 nautical miles, increasing the aircraft SIGINT capability that provides passive location and identification of electronic emissions in the surveillance area.

Certainly, other limitations in acoustic, radar and ESM technology, such as antenna gain and size, submarine developments and other factors determine the effective surveillance coverage. The discussion, however, makes the argument that altitude provides clear advantages for sensors and that the P-8 flight characteristics and wide-area surveillance concept exploit the advantages of airpower to a considerably larger degree than the P-3 Orion.

Network capabilities is the third feature of the P-8 aircraft that I examine. The Poseidon's network capability facilitates for sharing a timely and accurate information exchange based on integrated networks. John Boyd's OODA-loop (Observe-Orient-Decide-Act) as it illustrates the importance of decision-speed as a competitive advantage on the battlefield, and crucial to winning over the enemy. And, it is according to NATO, *critical* to provide decision-makers with timely and accurate information to facilitate a credible deterrence posture faced with the current strategic challenges (NATO, 2016b; Osinga, 2007, pp. 1-2, 315).

There are particularly two merits concerning network capabilities that deserve examination. First, I turn the attention to the *operational significance* of the Poseidon's network capabilities. Second, I discuss the *feasibility* of networked operations for Norway and NATO in the High North, since networked operations depend on more than just the capabilities of the aircraft.

First, concerning the *operational significance* the P-8 network capabilities. In view of Russian submarines and long-range precision cruise missiles threats, the most notable are integration, indications and warnings and Joint ASW.

Integration by network capabilities could on the one hand improve the capabilities of Norway Armed Forces and national resilience during an attack. The timeframe from a security crisis becomes subject to Article V discussions in the NAC, to Transfer of Authority (TOA) from the Norwegian Joint Headquarters (NJHQ) to NATO Joint Force Command (JFC) is uncertain. Defending national territory against enemy operations while awaiting NAC consensus, activation of Article V and military reinforcement of Norway, may require that Norway initially conduct national joint operations (Forsvaret, 2014, pp. 33-34), in which a networked integration of Norway's combat capabilities and the P-8 could facilitate for improvements to Norway's situational awareness, combat resilience and targeting process.

At the tactical level, network capabilities could increase the ability to search for and detect enemy entities by allowing cross cueing of sensors, weapons and shared situational

awareness, thus widening the surveillance area. One example is the F-35, boasting an Active Electronically Scanned Array (AESA) radar with surface and SAR capabilities, in conjunction with electro-optics capable of surface track and targeting, an ESM suite and sensor fusion. Although not an obvious ASW asset the F-35's sensor suite could provide valuable cueing to the P-8 for ASW purposes (Tørrisplass, 2017a, pp. 35-36).

On the other hand, network capabilities could also enable seamless transition to collective defence. Interoperability and a shared near-real time situational awareness may be one of the most fundamental capabilities for a seamless transition collective defence. A national C4ISR infrastructure and Norwegian force components like the P-8, equipped and proficient in networked defence, will arguably contribute to a seamless transition from national to NATO command. The establishment of NATO Communications and Information Agency (NCIA) in 2012, the Connected Forces Initiative (CFI) and the Federated Mission Networking (FMN) as well as the JISR initiative underscore the importance of networking capabilities for NATO. Integrating Norway's force structure accordingly by network capabilities is consequently a prerequisite for a seamless transition from national to allied operations (NATO ACT, 2015; NATO NCIA, 2014).

Indications and Warnings is likely one of the most important contributions of Norwegian MPAs in the High North. The network capability could be key given the implications of increased strategic responsiveness and agility of the Russian forces. Especially long-range precision strike capabilities that by compressing time and space have set the stage for short alert times. As the time from strategic decisions to tactical actions has become a matter of minutes and seconds, swift decisions is consequently of great importance (Regjeringen, 2016a, p. 29; Søreide, 2014, p. 105). Two important features of networking stands out in this context.

First is the ability to establish a comprehension of developments in the wider strategic sense. Events occurring within a narrow timeframe, separated by distance, could provide indications on broader strategic developments. Pre-positioning of submarines in the North Atlantic and air defence systems activity at the Kola Peninsula, in the event Russia is preparing to establish the Bastion, provides two examples. As both the P-8 and the F-35 boast network capability, the combined sensor coverage of the aircraft could provide strategic surveillance, and disseminate accurate and near real-time intelligence to decision-makers at the operational and

strategic level for indications and warning of a developing security crisis or war. This would enable strategic situational awareness in near real-time.

Second is the ability to respond. Once a surprise attack is imminent it is of particular interest to Norway and NATO to establish missile defence at strategic locations, like the F-35 base at Ørland, and have the F-35 aircraft airborne to prevent neutralization of a crucial deterrence capability for Norway (Askvik, 2015, pp. 58-62). The significance of network capabilities is consequently that the P-8 is able to provide decision-makers with launch detection and awareness, and consequently provide for immediate response options as networking reduces time from observation to action. Furthermore, if a near real-time common operational picture is provided for the joint operational headquarters and the strategic level, the chain of command likely increases its agility and responsiveness, thus reducing the risk of strategic paralysis (Pedersen, 2014, p. 83; Warden III, 2011, p. 71).

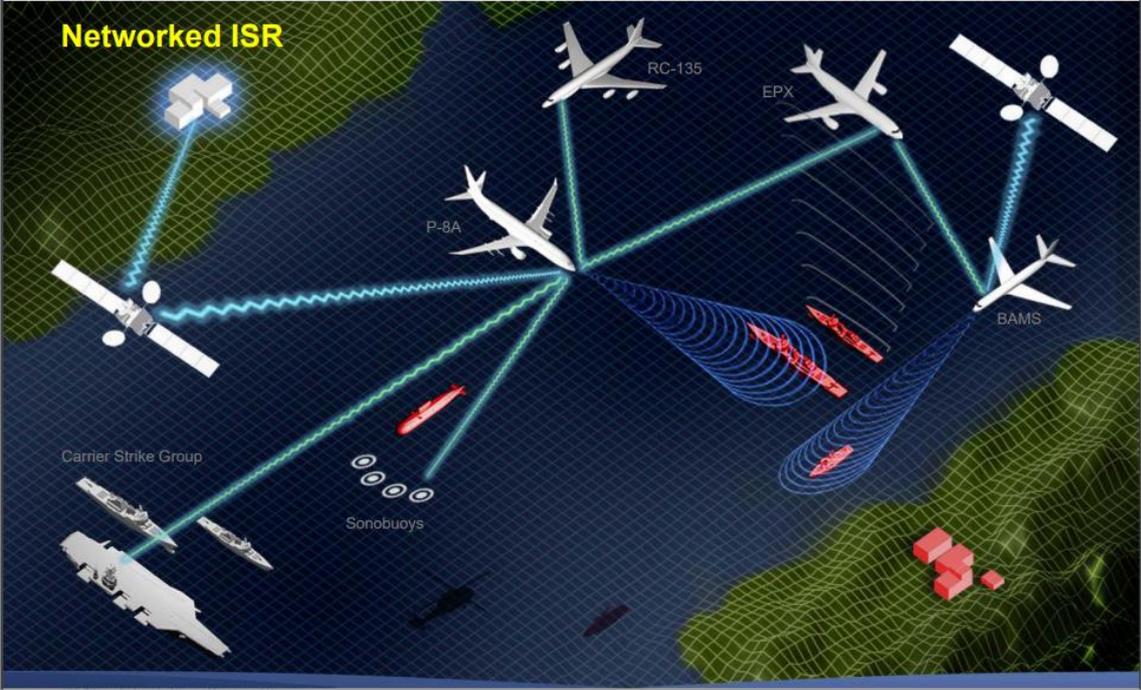


Figure 4: P-8 Networked surveillance (Boeing, 2013).

Networked defence capabilities could consequently enable a scale and resolution in surveillance as well as the speed and integration of information required for a comprehensive situational awareness, by joining a range of sensors into a comprehensive common operational picture. Furthermore, it could provide for early warning and response options in case of a surprise attack, by compressing observation to action time for the defender.

Joint ASW is a key capability for allied defence against Russian submarine threats, where the P-8 is a central component and network capabilities will have significant operational influence. A high-end joint ASW effort aims at denying enemy submarines freedom of operation by exploiting the combination of different sensors and platform characteristics. This layered approach is regarded as the most efficient way of defending against enemy submarines (JAPCC, 2016, pp. 12-16, 57).

Due to the long-range strike capabilities of Russian submarines, Joint ASW is ever more likely to be a theatre-wide effort. It should be noted that the concept of Joint ASW is far from new. However, the introduction of long-range precision guided missiles has fundamentally changed the characteristics of the ASW theatre, so the added complexity demands more from a situational awareness perspective, which consequently makes network capabilities favourable. The network capabilities of the P-8 will have operational impact on JASW for four reasons.

One, the ability to tap into the tactical situational awareness before coming on-station and relieving the off-going MPA, is paramount to be effective in prosecuting submarines once on-station and sustain an uninterrupted effort. Of particular interest is the ability to exchange sensor information between systems in contact with the enemy submarine, so that the on-coming aircraft is instantly able to prosecute the submarine, reducing the chance of lost contact.

Two, as ASW operations traditionally was confined in separate theatres of operations, the implication of Russia's long-range precision guided submarine missiles and air defence systems in the Bastion, is that Joint Theatre ASW forces now could be subject to threat from the entire theatre. By enabling a theatre-wide situational awareness, the P-8 could play a vital role in mitigating ASW force vulnerability by early warning, as well as enable operations aimed at destroying or suppressing enemy anti-access/area denial systems by contributing to joint targeting.

Three, the advantages of altitude and connectivity makes the Poseidon adept as a node for unmanned systems. Altitude enables greater ranges of communications to both UUVs and UAVs. Moreover, as unmanned systems come into service there could be good reason to use surface ships in other roles than ASW for vulnerability reasons, and the MPA would for the foreseeable future likely be the only long-range ASW platform with complete kill chain capabilities. (Massenburg, 2016).

Fourth, the P-8 boasts a high altitude ASW weapons capability (HAAWC). HAAWC enables the aircraft to launch wing-kit equipped torpedoes from altitude, with options for in-flight mid-course updates or re-targeting. The weapon is designed to glide a substantial horizontal distance, providing a standoff capability and reducing missile threats to the aircraft. The Poseidon’s agility implies that it could provide superior re-armament capabilities over sea-based units. Consequently, the Poseidon likely becomes the favourable choice for the Theatre Joint ASW Commander for torpedo engagement against enemy submarine targets. By

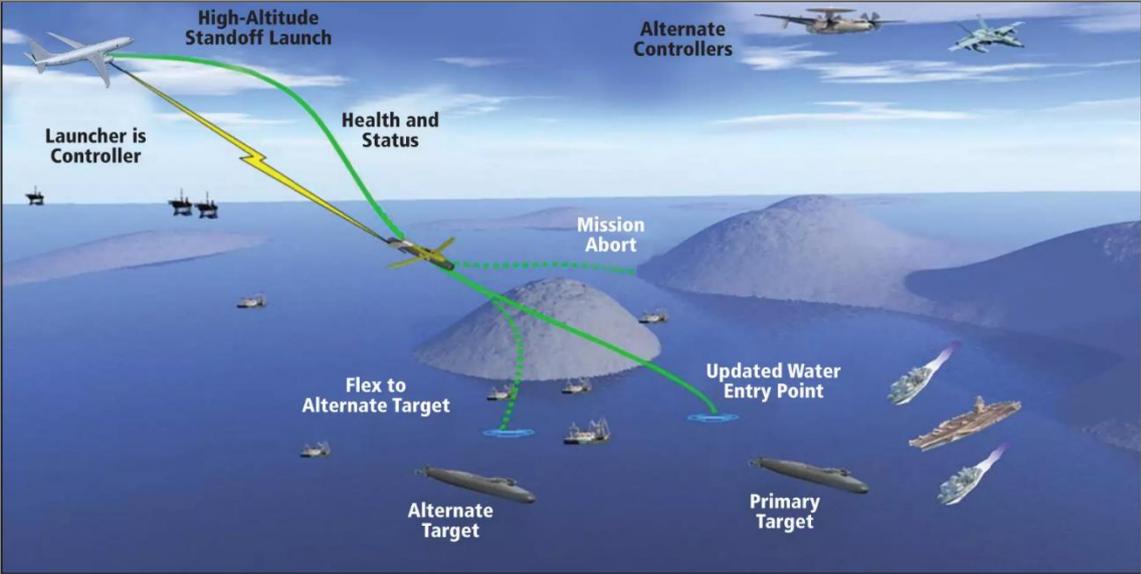


Figure 5: High altitude anti-submarine warfare weapon capability (Rogoway, 2016a).

sensor or targeting feed from all ASW sensors in the entire theatre, including space based platforms, fixed and deployable systems, the P-8 network capabilities thus provide for a third-party targeting, substantially increasing the engagement capability of a Joint ASW force (Håvold, 2015, pp. 27-28; Rogoway, 2016b).

The *feasibility* of networked operation for Norwegian Poseidons operating in the High North is questionable, however. Acronyms and definitions describing network defence concepts come in many shapes. While Norway uses NbF (Nettverksbasert Forsvar), NATO uses CIS (Communication Information Systems) and the NATO Joint Targeting doctrine refers to C4I. The following definition of C4ISR is fit for our purpose: “the network of platforms, sensors, communications nodes, and decision aids which connects systems to operators” (Humphreys, 2017).

Network defence has been a part of military conceptual and technological development for decades, and has especially been central in American military thinking as a part of RMA and

information superiority concepts. In the Norwegian Armed Forces, however, the manifestation has been rather slow. Once thought to revolutionize warfare it has become more of an evolution, and even though there has been an increase in information flow and communication capabilities, the development largely constitutes a gradual improvement of cooperation in joint operations (Ekspertgruppen for Forsvaret av Norge, 2015, p. 33).

The postponed revolution of NbF is caused largely by challenges in agreeing on a common inter-service and platform architecture as well as the lack of access to wideband satellite communications, especially in the High North. The latter might be the tallest obstacle as space-based systems has been the prerogative of the major military powers due to cost and technology. Nonetheless, in the dispersed areas of the High North and the maritime areas of the North Atlantic, satellites are the only communication carriers capable of bandwidths sufficient for networked defence, and consequently a requirement to sustain a near real-time network capability for the P-8 in the High North (Pedersen, 2014, pp. 82-83; Regjeringen, 2016a, p. 35; 2017b).

There are however no available satellite systems that could provide the required communications services. In June 2018, however, the Parliament decided to establish two satellites under Norwegian governmental control in high elliptic orbit (HEO) providing a 24-hour wide-band satellite communications (WBSC) support to the Norwegian Armed Forces and allies in the High North. When seen in conjunction with the expressed governmental ambitions for early warning and establishment of a corroborative situational awareness at all levels for the defence sector, the HEO project indicates that network capabilities is a priority for defence purposes in the High North (Dimmen, 2018, p. 2; Regjeringen, 2017b; Space Norway, 2018).

Furthermore, the US Air Force would like to use the Norwegian HEO satellites for hosting sensors, and Norway has acquired the F-35 and P-8, systems that are designed with networked interoperability in mind. Consequently there is a strong strategic incentive to establish complex and costly C4ISR infrastructures for Norway and its allies in the High North (USSTRATCOM, 2017; Weisgerber, 2018). The launch, planned for 2022-2023, enables Norway and its allies with a future C4ISR communications capability that likely supports network capabilities for the P-8.

5.2 The Operational Significance of the Trilateral Partnership

MPAs remain a primary asset for theatre-wide surveillance due to its range and responsiveness, and is fundamental to provide long-range indicators and warnings. While the three nations in the North Atlantic Poseidon partnership are investing in new MPAs, the total number of MPAs will be reduced compared to Cold War inventories. Fewer MPA airframes could pose a challenge (Defence Committee, 2012, p. 45; JAPCC, 2016, pp. 46, 87-88; Massenbourg, 2016).

Accepting gaps in submarine surveillance is problematic even in peacetime as it weakens the protection of a task force in transition to crisis response (JAPCC, 2016, pp. 48-49). The trilateral partnership should enhance the theatre-wide ASW and surveillance capability against Russian submarine operations in the North Atlantic. As the three nations acquire identical versions of the Poseidon, interoperability opens up to a range of accommodations that would likely increase presence, surveillance and ASW capabilities.

The most obvious that deserves merit is *doctrine, training*, as well as *bases, logistics and facilities*. These three issues will be examined in the following.

NATO has a range of *doctrines* containing procedures for joint ASW, which aims at integrating the different nation's maritime airpower and fleets under common procedures. For several reasons NATO ASW doctrine has become obsolete. Although NATO has argued in favour of interoperability for decades, each nation's choice of defence systems has largely been without interoperability in mind. This is true also for Norway, the UK, the US, concerning their MPA capabilities (Aas, 2017, p. 75). As the United States operated other versions of the P-3 than Norway did, the British operated the Nimrod, constructing three different aircraft developed on national terms.

In addition, the non-existence of a submarine threat to NATO changed the roles for MPAs during the 1990s and 2000s to increasingly taking on other missions and overland ISR capabilities (Massenbourg, 2016). Moreover, the current doctrines have not kept up to pace with the technological developments in ASW. Consequently, the evolution of a joint NATO ASW doctrine has suffered (JAPCC, 2016, pp. 46, 61; Nordenman, 2016, p. 5). As the three nations now acquire identical aircraft, it seems obvious to pursue a common doctrine for a coherent ASW effort, and according to Arild Eikeland in the Norwegian Department of Defence, a joint ASW doctrine spawned by the trilateral partnership will be addressed (Eikeland, 2018).

A common framework for *training*, the second issue examined here, will likely have positive impact on both interoperability and proficiency. As the UK is establishing a simulator complex at Lossiemouth, the future home of the British P-8, Norway is looking to do some of the training there (Aas, 2018). Since the Poseidon, similar to other modern military aircraft, is costly to operate, simulator becomes a preferred tool to train aircrews. With the choice of identical MPAs, and a common training framework the three nations have the potential for further development of common doctrine and procedures, which will pave the ground for closely integrated training and operations. Captain William Ellis, responsible for P-8 operations in Europe as the USN's Commodore MPA and Reconnaissance Operations and Commander Task Force 67 (CTF 67), argues that a common training framework in Europe would offer clear benefits.

I can tell you that having a robust training facility in theatre that we can access would be a tremendous benefit. There are several training events that are most effective when conducted in a simulator, and if a deployed squadron had [simulator] access they could keep their upgrading aircrew progressing through their syllabus vice having breaks in their training. The end result is shorter times-to-qualify, and the pay-off is more experienced and effective aircrews on station (*Jane's*, 2017, pp. 8-9)

As high-end joint ASW are intensive operations, they require the highest level of proficiency. Hence could a simulator capability, allowing the three partners training alongside each other, have invaluable impact on operational effectiveness. It facilitates for interoperability-training in the most complex environments, including aspects that are out of reach for real-live exercises, like weapons engagement (Klevberg, 2012, p. 288).

Close cooperation on *bases, logistics and facilities* is the third issue examined. Enabling host-based operations could offer significant operational flexibility and agility by enabling the three nations MPAs' use of whatever base is closest to the operations area. The operational significance is reduced transit distance to the operations area thus increasing the time on-station, as well as improved responsiveness. The location of Evenes, Lossiemouth and Keflavik in 'each corner' of the Norwegian Sea and GIUK, consequently provide for ample access to the North Atlantic.

The simultaneous deployment of numerous Russian submarine in order to inflict on NATO operations or exercises, last seen during NATO's exercise Trident Juncture, is likely a *modus operandi* to continue. Sustained 24/7 MPA operations are thus becoming fundamental to establish a persistent and thus credible high-end ASW surveillance capability, and of crucial

importance to address the current challenges posed by Russian submarines. The multiple number of Russian submarines however will likely require more resources than constituted by the combined P-8 fleets of Norway and the UK during surges of activity (JAPCC, 2016, pp. 57-58; Stormark, Hattrem, & Olsen, 2018).

A 24/7 MPA coverage of a single submarine datum given a one hour transit time to on-station, will require 3-4 operationally available P-8s taking turns (A. L. Roberts, 2018).

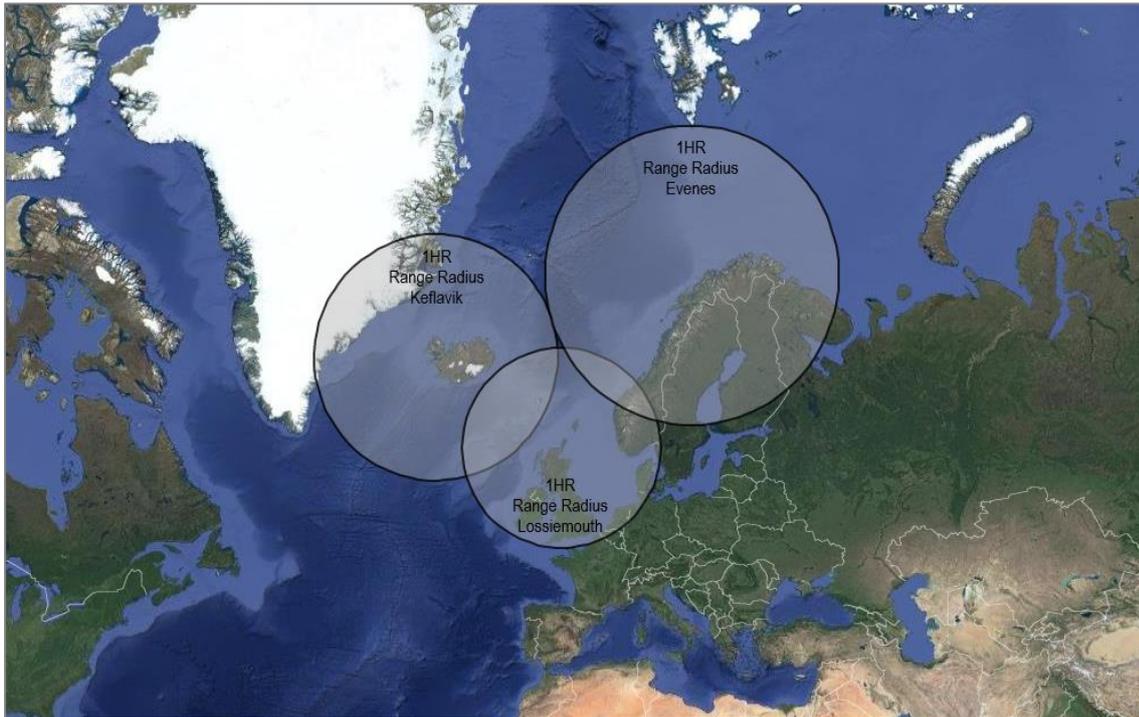


Figure 6: One hour range with the P-8A Poseidon. Note that the various size of range radius' are because of the Mercator map projection, which enlarges objects closer to the poles (Rekstad, 2018).

Considering the assumed operational availability of 85 % and a total fleet of 14 aircraft points to a theoretical capacity to prosecute 3-4 submarine datum's simultaneously. Moreover, MPAs are national strategic resources, and both countries could have to prioritize national operations. Hence, hard-pressed national priorities could draw MPA's away from allied ASW requirements (Defence Committee, 2018, pp. 8-9; JAPCC, 2016, p. 57).

Adding to the British MPA capacity challenges is the support to two new aircraft carriers (CVA), that in the absence of sufficient numbers of surface and sub-surface escort will require continues cover by at least two MPAs per CVA group. On top of that comes the Joint Commander's ISR requirements that during the past two decades have become a highly prioritized task for the MPAs (JAPCC, 2016, p. 56). Acknowledging these circumstances, the UK Government is investigating the need for acquiring an additional six aircraft, as

indications are that nine is insufficient (Defence Committee, 2018). Even if the British acquires additional six aircraft, there is still reason to believe that the total toll is too heavy a burden to bear by Norway and the UK for sustained surveillance of the Northern fleet submarines.

Retired General Lieutenant and former Chief of Norwegian Intelligence Service Kjell Grandhagen assesses that the Norwegian and British will be permanently present in the North Atlantic, while the American presence will be of a more intermittent character (Grandhagen, 2018).

A host-base sustainment concept could mitigate the MPA capacity gap in the North Atlantic by providing for a strategic agility and responsiveness. As a majority of American MPAs operates in Asia and the Eastern Mediterranean, the host-base sustainment opens up the possibility for the US Navy to prioritize aircraft between theatres. The 4,500+ nautical mile range and speed of the Poseidon, means the P-8 is well adapted for inter-theatre deployments. The US Navy already employs a rotational concept with Sigonella as a European ‘hub’ and Keflavik as the North Atlantic ‘spoke’ (Jane’s, 2017, p. 5). Widening the scope to include Evenes and Lossiemouth as two more spokes would strengthen the NATO ASW defence capabilities. A concept that enables American MPAs to support North Atlantic operations provides, according to Eikeland, a unique surge capability and should be seen in context with the large areas of responsibility and that the overall MPA resources are not in any abundance. (Eikeland, 2018).

The level of interoperability provided by the Poseidon and the trilateral framework lay the foundation for a possible host-base support concept providing cross servicing of P-8 aircraft across the North Atlantic. The ambition level currently set for Norway is to train Norwegian personnel, so that a cross servicing capability is established up to a level where aircraft servicing and minor fault repairs can be done as a host base service, the aim is to ease operations from each other’s MPA bases in the operations area (Aas, 2018).

Despite having considerable sustainment in situ there are likely *logistics* challenges following such a concept. Sonobuoys expenditure could be as high as 130 buoys for each mission. Distance to the operations area and sonobuoy payload capacity are governing factors that usually dictates on-station times of around four hours on-station. Consequently, as many as 7-800 buoys could be expended daily and somewhere around 5000 per week for one single datum. This requires large stockpiles of buoys. As sonobuoy unit cost has risen and the

sonobuoy stockpiles no longer are at Cold War levels, it has led to reductions in national buoy inventories.

Consequently, national restrictions on buoy expenditure has caused inexperienced crews to become hesitant and too conservative in employing buoys, resulting in lost contact during submarine prosecution (JAPCC, 2016, p. 40). A partnership could provide advantages in sonobuoy procurement, such as allowing larger production lines that would lower unit cost and facilitate stockpiling, thus mitigate crew hesitancy. Moreover, it strengthens the ability to resupply buoys in the theatre rapidly by airlift. The latter could be critical as shifting areas of operations during high-end ASW dictate the expenditure on each base. Commander MARCOM in NATO Vice Admiral Clive Johnstone underscores that the US is critical for resilient sustainment of high-end ASW operations, while pointing to sonobuoys as one of the particularly critical items (Johnstone, 2018).

Mission support *facilities* is the other critical component to MPA operations that could pose a sustainment challenge. Mission support centres (MSC) or tactical support centres (TSC) play an increasingly important role in MPA operations, especially as the information requirements of the aircraft and command structures have become more demanding. In the past, MSCs were able to support MPAs from any nation, and had for instance acoustic data from a landing aircraft analysed, processed and disseminated across the MPA and entire ASW force intelligence system. Several nation's MPAs were during the past two decades developed for over-land ISR collection, and the advent of the digital age commercial technology enabled a development of MPAs and mission support without interoperability considerations. Hence a mutual support is no longer the standard (JAPCC, 2016, pp. 72-73).

For the Poseidon the Tactical Operations Centre (TOC) could provide mutual MSC support, at least across Poseidon operators. The TOC is a part of the P-8 acquisition and an integrated part of the Poseidon's capabilities, essential for extracting the full potential of the surveillance and intelligence capabilities of the system. Moreover, it is also an irreplaceable link in directing ASW resources in the theatre-wide search efforts, as its post mission analysis capabilities enable the determination of aircrew success in prosecution, as well as confirmation of tactics, environmental assessment and analysis of the possible whereabouts of the target. Having that capability is absolutely critical to multi-national prosecution and direction of MPA ASW efforts (JAPCC, 2016, p. 73).

The challenge is that the TOC and mutual support are facing national restrictions. According to Aas, the national restrictions on classified data is hard to come by, and systems that are classified as Norwegian national only, are difficult to integrate with foreign nations (Aas, 2018). It could be that the close integration in a trilateral partnership, might overcome such classification issues. However much of the intelligence gathered through a variety of sources has, according to Grandhagen, such a high value for exchange that it would be unwise for Norway to share it automatically as a part of a trilateral partnership. Hence, should rather be dealt with on a bilateral basis (Grandhagen, 2018).

The solution for Norway is to bring a mobile Tactical Operations Centre (MTOC), a deployable mission support concept consisting of one or two containers. As the US and UK navies also have MTOCs, they would have to bring their own TOCs when they deploy to Evenes. As the concept of MOTC containers allows for air transport, the responsiveness is likely slightly impaired. Base infrastructure does still have to be prepared to receive and house the MTOCs. However, the MTOC require significant logistics to move from one location to the other, which could impair operational and strategic agility. Consequently, the US Navy is looking into a downsized and limited capability for short duration deployments, a concept that may spawn a solution for its partners as well (Wheeler, 2017, pp. 7-8). A cross base sustainment that enables a full data exchange capability for P-8 would require a complete MTOC and consequently robust logistics sustainment capability. With other logistical challenges like sonobuoys, a permanent TOC structure that allows for mutual support would have been preferable during high-end ASW operations, as it would reduce the logistical needs (Aas, 2017, p. 78; Pierce, 2013).

5.3 Summary

The P-8A Poseidon aircraft will represent a quantitative improvement in presence and a qualitative leap in ASW and ISR in the High North. Its speed and range make it a more agile and responsive platform than the P-3 Orion, and the availability of operational aircraft reinstates the MPA *capacity* at a higher level. By assessing merely the array of sensors, the aircraft represent quantitative improvements, as it boasts largely the same range of sensors as its predecessor. However, the combination of improvements in sensor capabilities, introduction of new subsurface systems, a changed concept and network capabilities, constitutes qualitative advances of the Poseidon's ASW and ISR capabilities.

The MAC system aims at re-enabling a wide area sub-surface surveillance capability, which together with a high-altitude ASW concept provides for a continuous high altitude and wide-area surveillance capability. Continuous high altitude operations, combined with the aircraft's increased operational altitude constitute unprecedented surveillance capabilities in all three surveillance domains, below, at and above the surface. Due to these capabilities, there will be qualitative leaps in surveillance performance.

A second feature that represents a qualitative leap in capability is the Poseidon's network capabilities that enables a comprehensive, accurate and timely situational awareness for all command levels and decision-makers. Moreover, networked capabilities open for engaging the F-35 as well as other platforms with the P-8 in cross cueing of weapons and sensors. Exploiting the network capabilities of the aircraft requires C4ISR infrastructures, not yet realized in Norway. Norway's national satellite ambition, US Air Force interest in satellite cooperation and the fact that Norway's F-35 and P-8 are designed for network operations, could provide the strategic momentum to establish C4ISR infrastructures to exploit the full surveillance and warfare capabilities of the aircraft.

The trilateral partnership is a driving factor for enhancing integration. The partnership lays the foundation for training, exercises and operations that will integrate warfighting and surveillance capabilities. The sharing of bases and facilities enable flexible and responsive operations across the North Atlantic for the three nations. This concept also provides for flexible integration of American MPAs, as their presence in the North Atlantic is intermittent. This is for NATO of great significance, since the Norwegian and British Fleet of aircraft are insufficient in numbers during high surges of Russian submarines operations.

Chapter 6. Influence on Norwegian Security Policy

Chapter six examines three questions: how the P-8 and the trilateral partnership could influence NATO's ability to establish a capable and credible *deterrence* towards Russia, while also maintaining *crisis stability* and providing for *reassurance* measures. The chapter concludes that the Poseidon and the trilateral partnership will have a positive impact by improving deterrence capability, and at the same time, primarily by leaving the Barents Sea as a Norwegian responsibility, providing Norway and the Alliance with flexibility and options to achieve crisis stability and contribute to reassurance towards Russia and low tension in the north.

6.1 Deterrence

Deterrence involves discouraging an aggressor from armed attack or taking other unwanted actions. The aggressor must consequently be convinced that the defender possesses capability and credibility to carry out the threat, and that the cost of aggression outweighs benefits (Mazarr, 2018, pp. 9-10). The following discussion argues that the P-8 along with a transatlantic partnership will likely increase NATO's deterrence *capabilities* and *credibility*. A *capable* threat is according to Quackenbush, a threat convincing the threatened that he will be better off if the threat does not materialise. A state facing a capable threat therefore prefers the status quo to conflict (Quackenbush, 2010). A *credible* threat is essentially about commitment and implementation of force (P. M. Morgan, 2003, pp. 15-16).

The major contribution of the P-8 and the trilateral partnership is its interoperability, surveillance and intelligence capabilities that paves the way for allied and national integration with the US Navy in the North Atlantic. Integrating and committing the US Navy to NATO's ASW defence will be the main pillar of an allied deterrence strategy, and likely elevate the threshold for Russian aggression against Norway and the Alliance. With this in mind, the following discussion addresses the P-8 and the trilateral framework's contribution to a deterrence strategy.

During the Cold War, NATO's protection of the SLOC from Soviet attack submarines implied a defensive ASW strategy. Soviet SSNs did not constitute a threat until positioned within torpedo range of a maritime force, and a submarine prosecution was therefore not required until the threat approached the force. Passive acoustic sensor-systems such as Sound Underwater Surveillance (SOSUS) provided an oceanographic transparency that enabled

theatre-wide early indication and warnings on the whereabouts of Soviet submarines.

Sustaining a situational awareness of subsurface threats was as such manageable in time and space, and provided for a deterrence by a defensive ASW strategy for the Alliance.

Today, the introduction of Kalibr anti-shiping cruise missiles (ASCM) on Russian submarines, and relative displacement in submarine silencing to ambient noise ratio have provided modern submarine designs with the operational advantage, offering Russian submarines operational freedom of action. Provided targeting information, Russian submarines are able to launch ASCM attacks to disrupt the transatlantic SLOC from well outside the horizon of a transiting force (Cote, 2006, p. 35). Kalibr land-attack cruise missiles (LACM) also pose a threat to air and land component operations in the entire theatre of the joint commanders. Moreover, long-range precision guided cruise missiles also constitute a compression of time and space in the event of a developing situation or security crises, reducing response times.

Although point defence systems exist, these missiles are very difficult to defend against once launched, and prevention of launch is key. As submarine launch platforms are highly mobile and can operate covertly a prevention of launch will require awareness of the submarine position at any given time (Askvik, 2015, pp. 50-51; Cote, 2006, p. 35). Hence, is a defensive ASW strategy no longer suited to deter Russian submarine aggression, except for close protection of surface forces and convoys. Consequently, NATO needs to demonstrate the ability to “track Russian submarines at will, no matter where they are”, and impose unacceptable cost it be required (Foggo III & Fritz, 2016). This translates to a ‘hold at risk’ ASW strategy and implies a forward presence of ASW forces, hence a more offensive ASW posture and composure, which could influence crisis stability as discussed later in this chapter.

The P-8’s wide-area surveillance and network capabilities is likely to provide an unprecedented ASW and ISR capability compared to legacy aircraft and other surveillance assets. Moreover, the trilateral framework for surge capability represent a significant contribution that could provide for a continuous surveillance of Russian submarines in the North Atlantic. Moreover, the added ASW capability by MAC, the high altitude concept and torpedo standoff capability means that the P-8 provides a complete kill chain capability against submarines (Massenburg, 2016). Eikeland says that “although the P-8 is not an

obvious asset for deterrence, it likely has a deterrent effect by its presence, and that the ability to track submarines and complete the kill chain, could have a certain effect” (Eikeland, 2018).

It seems less likely that the Poseidon or the trilateral arrangement could have a direct influence on broad deterrence, dissuading Russia by the threat of punishment or denial. The main reason being that, although the self-protection suite of the Poseidon could mitigate certain light missile threats, it is unlikely that the P-8 it is able to conduct ASW operations in a contested or hostile air space without escort or other means of protection. Consequently, would the Bastion defence, with a few exemptions like the F-35, deny NATO air operations and thus prevent prosecution of Russian submarines by MPA’s. Leif Sommerseth and Jan Ove Rygg, chief of joint operations at Norwegian Joint Headquarters and commander NAOC respectively, says that the Poseidon’s deterrent effect is negligible. It is likely to have little impact by itself on the possible aggress of Russian submarines in a looming war (Rygg, 2018; Sommerseth, 2018).

In a military conflict, the P-8 can influence an adversary’s submarine capabilities. but it depends on other capabilities like fighter aircraft, ASW capable ships, submarines and aircraft in a layered Joint ASW effort to have any kind of influence on broad deterrence (Grandhagen, 2018). The following discussion on deterrence is consequently based on the premises that the Poseidon’s influence on deterrence will be as part of integrated operations.

NATO without the US could potentially play a part in managing a northern crisis scenario, but does not have the ASW potency to counter Russian submarine operations in the Bastion defence (JAPCC, 2016, p. 98). The integration of the US Navy is consequently fundamental to sustain both an ASW force capability and credibility. However, the obligations in response to China in the Asia-Pacific and the US demand for burden-sharing from its NATO partners could question US Navy’s commitment to a presence in the North Atlantic (Tamnes, 2016, p. 19). The reactivation of the US Navy second fleet provides a strong signal of interest, but what capabilities the fleet will incorporate is not yet been decided. Any doubt of the commitments of the US Navy to the Alliance threatens credibility, and could be perceived by Russia that the threat of unacceptable cost may be abandoned (Mazarr, 2018, p. 10).

The Poseidon defence capabilities and the trilateral partnership could however, provide for deeper allied commitment, hence strengthen *integration*, and consequently deterrence. The further discussion looks at three merits could that could facilitate for a stronger integration, *interoperability*, *burden-sharing*, and *intelligence*.

First, as *interoperability* enhances P-8 cooperation between the three MPA operators, the Norwegian and British Poseidons will also be interoperable with the US Navy fleet. Along with a joint doctrine for ASW, training and exercises, as well as a commitment to C4ISR infrastructures, Norwegian and British Poseidons could be integrated at every level with US Navy warfighting capabilities in the North Atlantic. The high level of interoperability between platforms, sensors, doctrine and command structures strengthens warfighting capabilities by enabling seamless integration and operations, thus enhances the capability of the deterrence.

Second, the political turbulence about *burden-sharing* has led to a concern about the cohesion in the Alliance and about the credibility of the collective defence guarantee. While much of the focus has been on the two-percent pledge, there is also every reason to emphasise the quality of forces and contributions. (Binnendijk, 2018). The Poseidon addresses one of the most severe capability gaps in the Alliance, and constitutes an investment many NATO partners is unable to fit into their national defence budgets or capability requirements, and is according to Eikeland a good example of burden-sharing (Eikeland, 2018). The Norwegian acquisition, the trilateral agreement sharing common infrastructures are clear statements of purpose, and a catalyst for a strengthened US commitment to both Norway and the Alliance (Mazarr, 2018, p. 10).

Third is *intelligence*. The vicinities of the Kola Peninsula constitute the Northern Fleet's main area for training, exercises, tactics development and weapons testing. Norway, as a small-state, can monitor these activities more effectively than any other allied state (Eikeland, 2018; Grandhagen, 2018). The intelligence retrieved in the Barents Sea is vital to deterrence for two main reasons (Klevberg, 2012, p. 291). One, the *technical intelligence* is key to stay informed of Russian technological and arms development and potential vulnerabilities, which is the foundation for the development of allied defence technology, capabilities and strategies (Klevberg, 2012, p. 268). Two, *indications and warnings* is reliant on developing a knowledge of Russian posture and intentions.

It is thus fundamental that the quality of the intelligence is at the highest level, a quality that has historically depended on access provided by Norway and technology provided by the US. The strong bilateral commitment served a common purpose during the Cold War, explaining the close bilateral relationship to the US and often referred to as the Alliance within the Alliance (Klevberg, 2012, pp. 411-414). Given the circumstances and the trilateral

cooperation, this arrangement would serve a similar purpose today. The procurement of the P-8 will improve Norway's intelligence capabilities, and there is no evidence that the US and the UK will start operating in the Barents Sea. Hence, Norway will remain a vital collector of intelligence and surveillance information, benefitting from its various intelligence means and its P-8 operations, in peace, crisis and war. Which underscores the importance of P-8 in strengthening deterrence by integration.

6.2 Crisis Stability

The P-8 and the transatlantic partnership could influence crisis stability in three major ways: By reducing the threat of a Russian *pre-emptive strike*, the potential for a Russian surprise attack to achieve *fait accompli*, and reducing the risk of *unwarranted escalation*.

First, Norwegian P-8s could reduce the threat of a Russian pre-emptive strike. A hold at risk strategy that requires surveillance of Russian submarines implies a presence of allied ASW capabilities in the Barents Sea and near the Kola Peninsula. The composition and geographic posturing of an ASW force will consequently affect crises stability. A forward presence by an allied surface and submarine force with *offensive* first-strike capabilities in the Barents Sea could pose a first-strike threat to Russia, as the SSBNs patrol areas and key strategic infrastructures are situated here. An offensive and forward maritime NATO force posture could consequently leave Russia in a security dilemma on the notion that pre-emptive strike is its only viable option for self-defence.

Increasing the distance between allied offensive first-strike capable threats and the Kola Peninsula could on the other hand reduce the security dilemma and increase stability. An allied maritime strategy for the High North could provide for stability by restricting NATO's offensive maritime forces in the Barents Sea during peacetime. Norway's P-8 would be a key contributor by sustaining presence and surveillance in the Barents Sea and demonstrate the ability to "track Russian submarines at will, no matter where they are" (Foggo III & Fritz, 2016). And although the P-8 could restrict Russian submarine activity, it does not constitute any strategic threat to Russia, especially not Norwegian Poseidons that are not currently planned with air-to-surface missile (ASM) capabilities (Eikeland, 2018).

Norwegian Poseidons are thus likely to provide for wide-area surveillance, and its networking capabilities could facilitate a near-real time situational awareness for a joint ASW force regardless of its geographic posture. Which facilitates for the option to respond by joint ASW strike capabilities surging from a withdrawn geographic and into the Barents Sea should the

situation dictate so. Consequently preserving deterrence in terms of a ‘fleet in being’ presence, while sustaining crisis stability and situational awareness by Norwegian P-8s. It is fundamental however that the ASW deterrence capabilities are not too distant, as prolonged response times could present an opportunity for a surprise attack by Russia.

Second, the P-8 and the trilateral partnership could reduce the potential of a Russian surprise attack and *fait accompli*. The partnership could influence this in several ways. The joint effort and the division of labour between the three countries, normally leaving the Barents Sea to Norway, contributes significantly to enhanced information collection. The advent of American and British Poseidons operating from Evenes can also be a significant signal that the Alliance is committed to Norway, thus raising the threshold for Russian opportunistic aggression.

However, the presence of allied P-8s is presumably going to be impermanent in Norwegian areas if interest, at least for the American Poseidon squadrons, so for Norway there is a need for a concept that underscores integration. Eikeland says that one of the key aspects of the trilateral framework, when taking into account the limited resources, is to merge operations, exercises and training into a visible presence in the North Atlantic. As the partnership is starting to influence operational integration of other ASW platforms, procedural interoperability issues are likely to become a thing of the past. Consequently will the combination of training, exercises and operations lead to increased activity in the North Atlantic in the future (Eikeland, 2018).

Third, *unwarranted escalation* could be the product of misconceptions and arms race. Choosing the correct response to a developing situation or crisis requires a thorough situational awareness. Misconceiving Russian actions, interpreting defensive measures as offensive and expansive could consequently lead to unwarranted escalation. Moreover, Russia employs a modus operandi that purposely introduces misconceptions, which could significantly contribute to erosion of stability. Russian development of weapons could also have negative impact. Increased emphasis on allied deterrence must therefore constitute a response that Russia perceives as rational and not overly threatening, thus avoiding inadvertent erosion of stability. Having a thorough comprehension on Russian capabilities and intent is therefore important. Providing for transparency and predictability in the Barents Sea is hence key and according to Eikeland one of the main reasons Norway is acquiring the P-8

(Eikeland, 2018). However, stability is still largely dependent on how Russia acts (Sommerseth, 2018).

6.3 Reassurance

Norway has long traditions in its security policy of balancing deterrence with reassurance in its asymmetric power relation with Russia. Some critics argue that the current line chosen by the government with increased emphasis on deterrence is displacing Norway's reassurance tradition, thus increasing tensions in its Russia relationship. Ole Marius Tørrisplass concludes in his master thesis "Deterrence or reassurance?", that the two are not a question of either-or, and that more deterrence may in fact warrant more reassurance. Norway consequently needs to sustain reassurance measures (Tørrisplass, 2017b, p. 80).

The discussion will address how two merits concerning the Poseidon could have a particular influence on Norway's reassurance towards Russia. First, is the ability to *balance threat with restraint*. Second, and of key importance to Norway security policy, is the significance of the P-8 in *maintaining Norway's strategic position* in the High North.

First, I examine the ability to *balance threat with restraint*. Norway's security policy has, as a response to the current strategic situation, increased the emphasis on deterrence towards Russia. Norway's force structure reflects deterrence through the establishment of offensive capabilities with long-range precision guided missiles as well as emphasis on allied integration. Although Norway communicates an intention of defence, the emphasis on offensive capabilities and deterrence by allied integration, may appear provocative for Russia. By offering reassurances through arms control and restraints, a defender could display to the adversary that the state will refrain from attack, despite having credible and capable deterrent measures (Jervis, 1993, p. 244).

Russia employs snap-drills and strategic exercises without notice, so Norway's ability to respond with ISR capabilities is critical to distinguish training and exercises from emerging aggression (Etterretningstjenesten, 2018, pp. 20-21). In a surge of Russian activity in the Barents Sea, the P-8 and F-35 are likely the two Norwegian platforms that provide the required responsiveness to establish an immediate presence and situational awareness (Øversveen, 2007, p. 41). With the offensive capabilities inherent in the F-35, however, there is a risk of unwarranted escalation. There is little to suggest that the small volume of Norwegian F-35s and Joint Strike Missiles constitute any strategic threat to Russia. However, deploying fighter aircraft with offensive capabilities close to the strategic important areas in

the Barents Sea, as a reaction to a Northern Fleet surge of activity, could be misconceived by Russia as a *signal* of a Norwegian escalation (Tørrisplass, 2017a, pp. 55, 58; Øversveen, 2007, p. 65).

In contrast, the Norwegian Poseidons could constitute a presence that signals status quo. The Norwegian P-8 procurement programme does not currently include an air-to-surface long-range precision missile capability (Eikeland, 2018). The Poseidon's armament and roles therefore represent a continuation of its predecessor. As the P-3 currently constitutes a 'normal' presence in the Barents Sea, there is good reason to believe that Russia will perceive the Norwegian Poseidons as a defensive and benign capability in the future.

On the other hand, roles and armament for Norwegian P-8s may change in the future. The US Navy Poseidons are fitted with various ASMs, like the AGM-84 Harpoon and LRASM anti-shiping missiles, as well as the AGM-84H/ SLAM-ER land attack missile, which provide offensive standoff capabilities (Navy Recognition, 2018; Rogoway, 2014b). As Norwegian aircraft are identical, the possibility of obtaining ASMs is present for Norway as well. Rygg says that Norway should consider an ASM capability as it provides the joint force commander with more warfighting options, and increases the versatility of the platform (Rygg, 2018). The Norwegian Department of Defence is according to Eikeland assessing future prospects of air-to-surface capabilities for the platform (Eikeland, 2018).

A defensive armament for the P-8 could hence balance Norway's force structure by providing a responsive and flexible reassurance measure as an alternative to the offensive character of the F-35. Considerations of other capabilities for Norwegian Poseidons should take into account that a more offensive armament could change Russian perception of the aircraft's presence, thus reducing its utility as a reassurance measure further limiting Norway's reassurance options. The balance of having a mix of offensive and defensive capabilities like the F-35, the P-8 *and* the trilateral partnership could provide for escalatory options through posturing and geographic location, while retaining reassurance measures (Eikeland, 2018; Grandhagen, 2018; Rygg, 2018).

Second, and of key importance is the significance of the P-8 in *maintaining Norway's strategic position* in the High North. The aircraft are according to the government key to maintaining a leading position with particular knowledge of the strategic environment in the High North, and shall through a visible and frequent presence contribute to predictability and stability (Regjeringen, 2016a, p. 65).

Norway's MPA operations was according to Klevberg, a central asset in a system of intelligence capabilities for balancing integration and screening vis-a-vis key NATO allies during the Cold War. He further concludes that tighter integration in the allied partnership often unleashed a more vigorous Norwegian effort to underscore screening (Klevberg, 2012, p. 411; Tamnes & Eriksen, 1999). Norway's restrictions on allied flights crossing the 24°E into the Barents Sea intended as a reassurance measure towards the Soviet Union, and intelligence capabilities, positioned Norway as the key provider of strategic information to its allies during the Cold War.

As Klevberg describes, Norwegian control with information from Norwegian areas of interest was regulated through restrictions on allied operations - in other terms *screening*. The Norwegian screening policy provided in turn Norway with surveillance technology. This relationship continued after the Cold War, and when allied MPA activity wore off in the North Atlantic, Norway enjoyed nearly a monopoly in the Barents Sea in the 2000s (Klevberg, 2012, pp. 413-414).

Norwegian efforts to turn the focus of the Alliance back to collective defence and regional challenges, would not have had the momentum and influence it gained unless founded on solid information of Russian capabilities and developments. The importance of re-establishing the North Atlantic and the High North as a region of military strategic significance to the Alliance highlights the importance of MPAs for Norway and NATO.

As Norway is integrating with the US and UK in a Poseidon partnership, there could however be a need for Norway to reemphasize restrictions on allied operations in the Barents Sea. Surges of Russian activity or an American or British desire to establish their own presence and intelligence collection in an area of particular national strategic valuable may appear appropriate, and put Norway's established strategic position and reassurance policy at risk. Grandhagen says, however, that there is no obvious reason for the US or the UK to have a visible presence in the Barents Sea, for several reasons:

The balance of reassurance and deterrence is no less important now than during the Cold War, on the contrary. It is considerably easier for a small state to operate in this region than a larger military power. If you bring American aircraft directly into Russian areas of operation, it automatically increases the strategic tension. It is in my opinion not necessary to do so as we operate the same systems. By maintaining the Barents Sea as a Norwegian area of responsibility, it is possible to yield low-tension benefits. With the amount of aircraft we acquire and the capability they bring, our national ability to solve

this represents no issue regarding to capacity. So I would expect, even presume, that restrictions continue to apply (Grandhagen, 2018).

The UK and the US are according to Eikeland content with a Norwegian ‘ownership’ of the Barents Sea, and they are facilitating for Norway to maintain this position. However, in a surge of Russian activity, it will be an ongoing assessment (Eikeland, 2018). Sommerseth also says that Norway’s allies are supportive of maintaining a geographic distribution of responsibility where Norway provides for the Barents Sea. The only thing that could threaten this division of responsibility, is the inability to maintain a Norwegian presence and surveillance until the reception of the P-8, due to the low availability of the current MPAs (Sommerseth, 2018).

Eikeland says that Norway now has a particularly interesting strategic position among its allies, much in part due to the P-8 and the trilateral cooperation, and a timing that serves Norway well. The new Severodvinsk multipurpose submarines together with other Russian submarines have become a strategic threat to the transatlantic link and NATO. The P-8 consequently establishes Norway in a position to offer a solution to significantly improve a strategic problem for NATO. Moreover, the close MPA collaboration with the UK and the US, the most capable and powerful maritime nations in NATO, implies that Norway is entering a higher level in the Alliance. The F-35 and the P-8 are according to Eikeland also formative of NATO’s emerging strategy in the North. In its strategic relationship with allies, Norway is about to strengthen its position, which could improve its influence on a NATO maritime strategy in the High North (Eikeland, 2018).

6.4 Summary

Because of Russian submarines armed with Kalibr missiles in particular, in order to maintain a credible deterrence strategy, NATO should change from a defensive strategy of denial, to an offensive ‘hold at risk’ ASW strategy. This would enable the Alliance to track Russian submarines regardless of location. The P-8 provides an unprecedented surveillance capability combined with a complete kill chain capability. However, in order to establish a broad allied ASW deterrence, its main contribution would be to cooperate closely and integrate with other assets, capable of high-end ASW operations in contested areas. The Poseidon does not have that capability due to its vulnerability to air threats.

The US Navy’s broad range of ASW capabilities is a cornerstone to allied warfare in a contested environment. The Poseidon paves the way for Norwegian integration in three major ways. *First*, the P-8 level of interoperability with US Navy warfighting capabilities is unprecedented. *Second*, it is a major contribution to burden-sharing in the sense that it closes a major capability gap and addresses a strategic problem for the Alliance. *Third*, and the most significant, is bilateral integration with the US coming from intelligence exchange. Norway will probably continue to have privileged access to the Barents Sea, and thus remain a vital intelligence and surveillance asset for Norway’s allies. The added capability of the Poseidon together with Norwegian access to the Barents Sea, will improve the quality of the intelligence exchange, which underscores the importance of P-8 in strengthening deterrence by integration.

The Poseidon and the trilateral partnership influence crisis stability in three major ways: By reducing the risk of a Russian *pre-emptive strike*, the potential for a Russian *surprise attack* to achieve *fait accompli*, and minimise the danger of *unwarranted escalation*. *First*, the Poseidon’s wide area surveillance and network capabilities could facilitate for allied joint ASW forces to maintain a withdrawn posture in the North Atlantic. A presence of Norwegian MPAs in the Barents Sea could hence provide for situational awareness and enable a surge of joint ASW forces if required. By geographic restriction in peacetime, the footprint of offensive NATO capabilities in the Barents Sea could consequently reduce the perception of a prisoner’s dilemma for Russia. *Second*, the potential for a Russian surprise attack and *fait accompli* could be reduced by signalling allied commitment through the trilateral partnership. However, the impermanent character of American MPAs highlights the need for a trilateral operations concept that by common training, exercises and operations would focus on

extensive activity in the North Atlantic. *Third*, the potential for unwarranted escalation could be reduced by the P-8's ability to enable a comprehensive situational awareness. By providing for transparency and predictability, the aircraft can contribute to counter Russian deception that could lead to misconceptions and potentially unwarranted escalation.

As Norway is increasingly dependent on deterrence, it should also increase its focus on reassurance. As a reassurance measure the P-8 is about to become of vital importance. With Norway's increased emphasis on long-range precision guided weapons, the P-8 will in the near future become a key crisis management asset of a defensive character. With its responsiveness and surveillance capabilities the aircraft can establish an immediate situational awareness in the High North. As it does not constitute a long-range precision missile threat to Russia, its defensive nature is central in signalling reassurance and balancing other Norwegian or allied force elements.

Of particular significance to reassurance is the contribution of the P-8 to maintain Norway's strategic position in the Barents Sea. Norway's Poseidons will facilitate for improved presence in the Barents Sea and intelligence to NATO and the US. This will sustain and even improve Norway's military strategic position. It could also, in conjunction with the trilateral partnership, improve Norway's standing in the Alliance and consequently increase Norway's saying in an allied maritime strategy for the High North.

Part IV – Conclusions

This study has examined the significance of the P-8 and the trilateral partnership for Norway. The thesis has focused on the operational significance as well as the influence of the P-8 and the trilateral partnership on Norwegian security policy. Theories of deterrence and crisis stability as well as maritime airpower have provided a framework for answering the research questions, as well as bridging operational capability to Norway's security policy, defence concept and the strategic background.

The strategic context is characterized by Russia's assertive and expansionist conduct and strategies aimed at undermining and destabilizing the West. This has established a new normal in the relationship between NATO and Russia in which strategic stability has weakened compared to the Cold War. At the same time, the High North is still characterised by economic and institutionalised cooperation, and is as such not likely a *source* of neither regional nor strategic conflict. A military conflict in the region will most likely be a spillover from conflicts in other places. Should an armed conflict occur between Russia and NATO in the High North, Russia will give priority to protecting its strategic submarines by establishing the Bastion Defence. Attack and multipurpose submarines are central, in conducting sea denial operations in the layered defence of the SSBNs, and carrying out interdict operations against the transatlantic SLOC.

The introduction of Kalibr long-range precision guided cruise missiles on Russian submarines and other platforms has significantly increased Russia's capability to defend the Bastion and conduct interdict operations towards NATO in the North Atlantic. Of particular significance, the offensive capabilities of Kalibr land-attack missiles provide Russia with the ability to hold the European and US mainland at risk. There are currently no prospects of any allied denial strategies that could prove effective for defence. Pre-emptive measures consequently stand out as the only viable deterrent strategy for NATO facing Russian submarines with Kalibr missiles. This brings us to the heart of the security dilemma and it may undermine crisis stability.

NATO continues to be the cornerstone of Norwegian security. Russia's military conduct and military capabilities underscore the need for NATO to develop a strategy for seamless escalation and transition to collective defence. Hence, deeper integration and interoperability with NATO of fundamental importance to Norway. Of particular significance

to integration of its allies, is the ability to sustain surveillance for indications and warnings as well as intelligence on Russian capabilities and intent.

The growing *operational significance of the P-8* is the result of enhanced capacity for Norway and NATO to sustain MPA presence, and improved agility and responsiveness to develop a situational awareness on emerging situations or crises. A high-altitude ASW concept provides, along with better sensors, a *sustained wide area surveillance* capability over, at and below the surface, which will be a qualitative leap in capability for Norway. The developments in sub-surface sensors significantly widens the search area in ASW. As the improved ASW capability enhances the ability to find and track submarines, the prospects of gaining intelligence on submarines is consequently improved.

Because of its network capabilities, the P-8 is able to provide decision-makers at all levels with timely and accurate situational awareness. Particularly for indications and warnings, are the wide area surveillance and network capabilities significant as it allows a theatre wide near-real time situational awareness. Network capabilities also open up for engaging in cross cueing of sensors and weapons in networked ASW and ISR. However, the Poseidon's network capabilities rely on Norway's ability to establish C4ISR infrastructures in the High North to exploit the aircraft's full surveillance and warfare capabilities.

The *operational significance of the trilateral partnership* reflects the fact that more interoperability and integration will increase NATO's overall capability to conduct ASW. Sharing facilities and basing will significantly improve the ability to sustain a continuous surveillance of Russian submarines in the North Atlantic. US P-8 participation in a flexible format adds substantial capacity to Norwegian and UK patrols during surges of Russian submarine deployments in the North Atlantic.

The *P-8 and the trilateral partnership contributes to strengthening Norwegian security policy* by improving deterrence and crisis stability and by providing a significant contribution to Norway's reassurance efforts.

Close cooperation and deeper integration between Norway, the US and NATO is the most significant contribution to *deterrence*. By being extensively interoperable with US Navy warfighting capabilities, closing capability gaps and addressing a strategic problem for the Alliance, the P-8 and the trilateral partnership strengthen allied deterrence. Norwegian Poseidons surveillance and intelligence contribution are crucial in providing NATO, and

specifically the US, with indications and warnings as well as intelligence on Russian capabilities and intent.

Crisis stability could be positively influenced by the P-8. However, it depends on the choice of NATO maritime strategy for the High North. A strategy in which forward allied ASW presence in the Barents Sea is left to Norwegian P-8s, reduces the security dilemma for Russia. The risk of a Russian surprise attack to achieve a *fait accompli* is reduced because of the trilateral partnership, as it signals allied commitments to support Norway. However, given the impermanency of American Poseidons, it is necessary to establish a concept that merges training, exercises and operations in the North Atlantic to reinforce the Russian perception of American involvement. Due to Russia's modes of operation, the need for transparency and predictability is one of the primary reasons for acquiring the Poseidon for Norway. Increased presence as well as improved ASW and ISR capabilities will have a significant and positive influence by reducing the risk of unwarranted escalation.

For *reassurance* purposes, the Norwegian P-8 will in the near future become a key defensive asset in Norway's force structure that boasts the required range, responsiveness and capabilities to provide for crisis management in the High North. The P-8 is hence vital to Norway by signalling restraint. Moreover, Norway's acquisition of the P-8, the trilateral partnership, and the F-35 is improving Norway's standing in the Alliance. This could increase Norway's influence on formulating the maritime strategy for the High North.

Abbreviations

A2/AD	Anti-Access/Area Denial
AAR	Air-to-Air Refuelling
ACINT	Acoustic Intelligence
ASM	Air-to-Surface Missile
ASW	Anti-Submarine Warfare
C4ISR	Command & Control, Intelligence, Surveillance & Reconnaissance
ESM	Electronic Support Measures
EW	Electronic Warfare
GPS	Global Positioning System
HAASW	High-Altitude Anti-Submarine Warfare
HAAWC	High-Altitude Anti-Submarine Weapon Capability
HEO	High Elliptic Orbit
ISR	Intelligence, Surveillance & Reconnaissance
LACM	Land-Attack Cruise Missile
LRMPA	Long-Range Maritime Patrol Aircraft
LTP	Long Term Plan for the Norwegian Defence Sector
MAC	Multi-static Active Coherent
MMA	Multi-mission Maritime Aircraft
MMF	Multinational Multi-role tanker transport Fleet
NSNW	Non-Strategic Nuclear Weapons
SIGINT	Signals Intelligence
SLBM	Sea-Launched Ballistic Missile
SLOC	Sea Lines Of Communication
SSBN	Ship Submersible Ballistic missile Nuclear
SSGN	Ship Submersible Guided missile Nuclear
SSK	Ship Submersible Conventional
SSN	Ship Submersible Nuclear
UAV	Unmanned Aerial Vehicle
UNCLCS	United Nations Commission on the Limits of the Continental Shelf
UNCLOS	United Nations Convention on the Law Of the Seas
UUV	Unmanned Underwater Vehicle
WBSC	Wide-Band Satellite Communications

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Appendix A – Approval Personvernombudet for forskning



Rolf Tamnes
Postboks 800, Postmottak
2617 LILLEHAMMER

Vår dato: 18.06.2018

Vår ref: 60979 / 3 / LAR

Deres dato:

Deres ref:

Forenklet vurdering fra NSD Personvernombudet for forskning

Vi viser til melding om behandling av personopplysninger, mottatt 01.06.2018.

Meldingen gjelder prosjektet:

<i>60979</i>	<i>Resurrecting the Atlantic triangle by maritime air cooperation.</i>
<i>Behandlingsansvarlig</i>	<i>Forsvarets høgskole, ved institusjonens øverste leder</i>
<i>Daglig ansvarlig</i>	<i>Rolf Tamnes</i>
<i>Student</i>	<i>Jan Egil Rekstad</i>

Vurdering

Etter gjennomgang av opplysningene i meldeskjemaet med vedlegg, vurderer vi at prosjektet er omfattet av personopplysningsloven § 31. Personopplysningene som blir samlet inn er ikke sensitive, prosjektet er samtykkebasert og har lav personvernulempe. Prosjektet har derfor fått en forenklet vurdering. Du kan gå i gang med prosjektet. Du har selvstendig ansvar for å følge vilkårene under og sette deg inn i veiledningen i dette brevet.

Vilkår for vår vurdering

Vår anbefaling forutsetter at du gjennomfører prosjektet i tråd med:

- opplysningene gitt i meldeskjemaet
- krav til Informert samtykke
- at du ikke innhenter [sensitive opplysninger](#)
- veiledning i dette brevet
- Forsvarets høgskole sine retningslinjer for datasikkerhet

Veiledning

Krav til Informert samtykke

Utvalget skal få skriftlig og/eller muntlig informasjon om prosjektet og samtykke til deltakelse.

Informasjon må minst omfatte:

- at Forsvarets høgskole er behandlingsansvarlig institusjon for prosjektet
- daglig ansvarlig (eventuelt student og veileder) sine kontaktopplysninger
- prosjektets formål og hva opplysningene skal brukes til
- hvilke opplysninger som skal innhentes og hvordan opplysningene innhentes

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

- når prosjektet skal avsluttes og når personopplysningene skal anonymiseres/slettes

På nettsidene våre finner du mer informasjon og en veiledende mal for [Informasjonsskriv](#).

Forskningsetiske retningslinjer

Sett deg inn i [forskningsetiske retningslinjer](#).

Meld fra hvis du gjør vesentlige endringer i prosjektet

Dersom prosjektet endrer seg, kan det være nødvendig å sende inn endringsmelding. På våre nettsider finner du svar på hvilke [endringer](#) du må melde, samt endringsskjema.

Opplysninger om prosjektet blir lagt ut på våre nettsider og i Meldingsarkivet

Vi har lagt ut opplysninger om prosjektet på nettsidene våre. Alle våre institusjoner har også tilgang til egne prosjekter i [Meldingsarkivet](#).

Vi tar kontakt om status for behandling av personopplysninger ved prosjektslutt

Ved prosjektslutt 30.11.2018 vil vi ta kontakt for å avklare status for behandlingen av personopplysninger.

Gjelder dette ditt prosjekt?

Dersom du skal bruke databehandler

Dersom du skal bruke databehandler (ekstern transkriberingsassistent/spørreskjemaleverandør) må du inngå en databehandleravtale med vedkommende. For råd om hva databehandleravtalen bør inneholde, se [Datatilsynets veileder](#).

Hvis utvalget har taushetsplikt

Vi minner om at noen grupper (f.eks. opplærings- og helsepersonell/forvaltningsansatte) har [taushetsplikt](#). De kan derfor ikke gi deg identifiserende opplysninger om andre, med mindre de får samtykke fra den det gjelder.

Dersom du forsker på egen arbeidsplass

Vi minner om at når du [forsker på egen arbeidsplass](#) må du være bevisst din dobbeltrolle som både forsker og ansatt. Ved rekruttering er det spesielt viktig at forespørsel rettes på en slik måte at frivilligheten ved deltakelse ivaretas.

Se våre nettsider eller ta kontakt med oss dersom du har spørsmål. Vi ønsker lykke til med prosjektet!

Vennlig hilsen

Dag Kiberg

Lasse Andre Raa

Appendix B – Approval of data collection Norwegian Armed Forces



1 av 2

Vår saksbehandler
Borghild Boye, bboye@mil.no
+4723 09 57 55, 0510 5755
FHS/STAB/UTD FOU

Vår dato **Vår referanse**
2018-09-14 2018/033388-002/FORSVARET/ 919

Tidligere dato **Tidligere referanse**

Til
Jan Egil Rekstad
Forsvarets høgskole
..

Kopi til

Tillatelse til å innhente opplysninger i og om Forsvaret til forskningsformål

1 Bakgrunn

Forsvarets høgskole (FHS) har mottatt din søknad av 4. september 2018 om tillatelse til å innhente opplysninger i og om Forsvaret til forskningsformål. Prosjektet det skal samles data til er en masteroppgave, og følgende problemstilling er oppgitt: « How can the transatlantic P-8 cooperation contribute to the revitalization of NATO's collective defense in the North Atlantic? » Det skal gjennomføres intervju med et utvalg ledere fra øverste ledernivå/tilsvarende ved FD II, E-tjenesten, FOH J3/NAOC og 133 LV i Luftforsvaret.

2 Drøfting

Vurdering av søknader om innhenting av opplysninger fra Forsvaret til forskningsformål er regulert av *Bestemmelse om utlevering av personopplysninger til forskning og gjennomføring av spørreundersøkelser*, fastsatt av sjef HR-avdelingen i Forsvarsstaben 1. mai 2018.

I henhold til punkt 2.3 og 2.4 i denne bestemmelsen er det en forskningsnemnd nedsatt av sjef FHS som behandler søknader om innhenting av opplysninger fra Forsvaret til forskning. Kriterier og rettsgrunnlag som skal legges til grunn for vurderingen er omtalt i punkt 4.1 og 4.2.

Forskningsnemnda har vurdert din søknad som tilfredsstillende i henhold til gjeldende krav.

3 Vedtak

Søknad om tillatelse til innhenting av informasjon i og om Forsvaret til forskningsformål innvilges. Tillatelsen gjelder til prosjektslutt 30. november 2018.

4 Vilkår for tillatelsen

Det er kun gitt tillatelse til innsamling av det datamaterialet som fremgår av søknaden. Data hentet fra Forsvaret skal ikke benyttes til andre formål enn den aktuelle masteroppgaven. Ved prosjektslutt skal alle data hentet fra Forsvaret slettes. Det skal sendes sluttmelding til FHS vedlagt masteroppgaven. Sluttmelding sendes til datautlevering@fhs.mil.no

Postadresse Postboks 800 Postmottak 2617 Lillehammer Norge	Besøksadresse Akershus festning, bygn 14 / 0015 OSLO Norge	Sivil telefon/telefaks Militær telefon/telefaks 99/0500 3699	Epost/ Internett postmottak@mil.no www.forsvaret.no Organisasjonsnummer NO 986 105 174 MVA	Vedlegg
--	--	--	--	----------------

Sven G. Holtmark
professor
leder av forskningsnemnda

Dokumentet er elektronisk godkjent, og har derfor ikke håndskreven signatur.

Appendix C – Interview guide

Intervjuguide

Introduksjon (10min)

Dette intervjuet er del av kildegrunnlaget for en mastergrad ved Forsvarets Høgskole/Stabsskolen. Forutsatt din godkjenning vil det bli benyttet lydopptaker under intervjuet og intervjuet vil deretter bli transkribert.

Alle opptak av lyd vil bli slettet når transkribering er gjennomført. Intervjuet er i normalt ikke anonymt, med mindre de eksplisitt ønsker at det skal være det. De kan når som helst trekke dem, før- underveis-, eller etter intervjuet dersom de skulle ønske det.

For oppgaven leveres, vil de få anledning til å kvalitetssikre dine sitater ved gjennomlesning. Det minnes om at informasjonen gitt i intervjuet skal ligge på ugradert nivå, dersom gradert informasjon blir gitt må dette informeres om slik at informasjon kan behandles i henhold til gjeldende regelverk.

Pro forma:

- *Utfylling av samtykke-erklæring.*
- *Intervjuers bakgrunn*

Bakgrunn

Den russiske ubåttaktiviteten fremstår som en asymmetrisk trussel noe som utgjør en strategisk fordel i favor Russland. Det kan hevdes at dette kanskje er kanskje den aller største trusselen mot NATOs kollektive forsvar. Alliansens manglende evne til ASW og troverdig maritim avskrekking kan således hevdes å være en av NATOs største svakheter.

Norge, USA og Storbritannia har signert avtaler og uttrykker på strategisk nivå at det legges til rette for et tett P-8 samarbeid mellom de tre nasjonene. Oppgaven vil forsøke å finne ut hvordan NATOs evne til kollektivt forsvar kan styrkes, og drøfte konsepter for et slikt samarbeid.

Problemstilling:

Hvordan kan et transatlantisk P-8 samarbeid bidra til revitalisering av NATOs collective defence i Nord-Atlanteren?

Erfaringer (5min):

Navn, nåværende stilling.

På hvilken måte er- eller har anskaffelsen av P-8 vært tema for deg i løpet av din karriere?

Hvilken rolle hadde du i anskaffelsesprosessen av nye maritime patruljefly?

Arbeider du med denne tematikken i dag?

Fokusering (35min)

Avskrekking

1. Hvordan tror du anskaffelsen av P-8A Poseidon vil påvirke norsk sikkerhetspolitikk?
2. Kan P-8, alene eller sammen med andre plattformer bidra til avskrekking gjennom Denial eller Punishment?
3. Hvilke typer samarbeid om P-8 mellom Norge, USA og Storbritannia ser du for deg kan være aktuelle? Hva er gevinstene, og hvilke utfordringer ligger til et slikt samarbeid?
4. På hvilken måte kan et slikt samarbeid bidra til NATOs kollektive forsvar? Og på hvilken måte?
5. Hvordan mener du at systemene bidrar til å motstå Russisk bruk av tvangsdiplomati, press og «hybride metoder»?

Kristestabilitet

Jeg definerer her kristestabilitet som evne til å motstå press uten at det fører til unødvendig eskalering. Altså sannsynligheten for at kriser løses fredelig uten eskalering, og uten at Norge må gi etter på sentrale interesseområder.

1. På hvilken måte tror du P-8 kan påvirke kristestabiliteten mellom NATO og Russland i Nord-Atlanteren?
 - a. Strukturell stabilitet
 - b. Kristestabilitet – akutte kriser
2. Hvordan bør systemene brukes for å optimalisere kristestabiliteten?
 - a. Innretning, doktriner, operasjonskonsept, signalisering, øvelsesmønster
3. Hvordan vil et samarbeidskonsept kunne påvirke stabiliteten i nord om det innebærer øt tilstedeværelse fra USA og Storbritannia i Barentshavet?

Operasjonskonsept

Samarbeid med maritime patruljefly under Den kalde krigen fragmentert, med liten grad av interoperabilitet mellom plattformer, kommandoapparat og systemer. Selv om det eksisterte felles NATO prosedyreverk, så var det i stor grad nasjonale rammer som lå til grunn for den enkelte nasjons MPA-operasjoner.

1. På hvilken måte må operasjonskonseptet for P-8 i Norge utformes for å i best mulig grad bygge opp under et samarbeid med den hensikt å styrke NATOs kollektive forsvar?
2. Hvordan skal Norge ivareta en balansert tilnærming til avskrekking og beroligelse overfor Russland, og avskjerming og på den annen?

-
3. Er det områder man ser at et slikt samarbeid ikke kan gjennomføres på bakgrunn av nasjonale interesser? I så fall; hvilke?

Avslutning/oppsummering (10min)

1. Er det grunn til å tro at norsk tilnærming til avskrekking og beroligelse har endret seg i løpet av de siste 10 årene?
2. Er det grunn til å tro at NATO har adoptert norsk tilnærming til avskrekking og beroligelse?

Er det noe som ikke er dekket og som du mener vil være relevant å snakke om?

Har det blitt sagt noe i løpet av intervjuet som du ikke ønsker å siteres på – eller som er gradert og derfor må behandles deretter?

Appendix D – Interview consent form

Informasjonsskriv og samtykkeerklæring til intervju

Intervjuet er en del av en mastergradsoppgave Forsvarets Høgskole. Oppgaven skal leveres i slutten av november 2018 og det vil bli gjennomført en muntlig eksamen for sensur. Resultatet fra undersøkelsen vil bli publisert, og oppgaven gjøres tilgjengelig på Forsvarets Høgskoles hjemmeside.

Bakgrunnen for oppgaven er NATO og Russlands relative styrkeforhold i Nord-Atlanteren. Russlands evne til A2AD og ubåtoperasjoner i Nord-Atlanteren fremheves som et av de viktigste områdene hvor NATO må forbedre sin evne til avskrekking gjennom kollektivt forsvar.

Formålet med oppgaven er å svare på hvordan et transatlantisk samarbeid innenfor maritim luft mellom Norge, USA og Storbritannia, spesifikt med P-8A Poseidon, kan bidra til å revitalisere NATOs kollektivt forsvar i Nord-Atlanteren.

Studien er eksplorativ og vil baseres på dokumentstudier og intervjuer. Samarbeidet mellom Norge, USA og Storbritannia innenfor P-8, og effektene av dette i NATOs collective defense er av særskilt interesse for oppgaven. Det eksisterer lite tidligere forskning på et slikt samarbeid innenfor maritime luftoperasjoner, og det vil derfor bli gjennomført semistrukturerte intervjuer av SME'er (Subject Matter Experts) for å forske på problemstillingen.

De er selektert for intervju med den hensikt å belyse spørsmål rundt anskaffelse og innføring av P-8A Poseidon i Norge, herunder hvilke muligheter og begrensninger som eksisterer i et samarbeid med USA og Storbritannia. Intervjuene påregnes å ta inntil en time.

Data innhentes ved hjelp av digital lydopptaker under intervjuet. Masteroppgaven skal i utgangspunktet publiseres som ugradert. Jeg ber derfor om at gradert informasjon ikke omtales mens lydopptakeren er påslått. Dersom det likevel omtales gradert informasjon ber jeg om at det presiseres slik at lyd-fil kan oppbevares i henhold til gjeldende regelverk.

Data som er samlet inn gjennom intervju vil ikke bli anonymisert med mindre de ønsker dette.

Deltagere kan derfor gjenkjennes gjennom oppgavens kildereferanser, dersom det er et ønske om å delta anonymt må dette spesifiseres i samtykkeerklæringen.

Det er frivillig å delta i studien, og de kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom de trekker dem, vil alle opplysninger om dem bli anonymisert.

Dersom de ønsker å delta eller har spørsmål til studien, ta kontakt med prosjektleder Jan Egil Rekstad (telefon: 92016853, e-post: jrekstad@fhs.mil.no), eller veileder Rolf Tamnes, IFS (telefon: 23095901, e-post: rolf.tamnes@ifs.mil.no).

Studien er meldt til Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS.

Samtykke gis skriftlig under, eller muntlig til prosjektansvarlig for masteroppgaven, Jan Egil Rekstad.

Vennlig hilsen
Jan Egil Rekstad
FHS/Masterstudiet

Jeg har mottatt informasjon om studien, og gir samtykke til deltagelse

(Signert av prosjektdeltaker, dato)