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The Theory and Evolution of Nuclear-Weapon-Free Zones: Could the Arctic Be Next?

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Introduction

As of 2020, 138 out of 193 United Nations (UN) member states are party to at least one of the various types of nuclear-weapon-free-zone (NWFZ) treaties in existence. There are five NWFZ treaties that cover highly populated geographic regions and 102 states belong to such treaties. This can be compared to the retention of nuclear weapons by the nine nuclear weapon states (NWSs) and the 32 additional states that maintain a nuclear posture through extended nuclear deterrence (nuclear umbrella states).[1]

The Southern Hemisphere has enjoyed the greatest success in establishing NWFZs, but several other regions have been subject to analogous proposals. Central and Eastern Europe, the Korean Peninsula, South Asia, the Nordic region and the Arctic have all been the subject of proposals – all of which will be outlined. This review will first take up the concept and practice of NWFZs in a comprehensive manner and then provide an outline of the history of proposals for an Arctic NWFZ.

The exceptional growth of NWFZs calls into question the notion that nuclear weapons provide states certain essential benefits, such as enhancing national power, prestige and guaranteeing deterrence. The majority of states, by participating or cooperating in NWFZs, have balked at the mainstream and hegemonic understandings of nuclear deterrence as the "ultimate deterrent."[2] The impressive development of NWFZs should prompt scholars and defence practitioners to consider more seriously the foundations of nuclear weapons theory, the role such weapons play in international relations and how the post-Cold War security and strategic environment has opened up new opportunities, or even fundamentally changed international relations.[3] This is precisely what George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn signalled in their 2007 *Wall Street Journal* article in claiming that "deterrence is decreasingly effective and increasingly hazardous."[4] This literature review serves as a starting point for those who would like to make a deeper dive into the issue and also situate this discussion within the North American and Arctic defence and security context.

Definitional Understanding

It is first necessary to clarify what exactly constitutes a NWFZ since NWFZs and mechanisms of denuclearization can easily be conflated. UN General Assembly Resolution 3472 B (1975) defines a NWFZ as:

> …any zone recognized as such by the General Assembly of the United Nations, which any group of States, in the free exercises of their sovereignty, has established by virtue of a treaty or convention whereby: (a) The statute of total absence of nuclear weapons to which the zone shall be subject, including the procedure for the delimitation of the zone, is defined; (b) An international system of verification and control is established to guarantee compliance with the obligations deriving from that statute.[5]

Working from this foundational understanding, the UN Disarmament Commission recommended the following three core measures as central to the establishment and achievement of a NWFZ: (1) non-possession of nuclear weapons by zonal states; (2) non-stationing of nuclear weapons by any state within the geographical area of application of the zone; and (3) non-use or non-threat-of-use of nuclear weapons throughout the zone or against targets within the zone.[6]

Current areas that are nuclear-weapon-free can be divided into three categories: (1) nuclear-weapon-free zones established by treaties; (2) nuclear-weapon-free geographical regions established by treaties; and (3) nuclear-weapon-free status states. There are currently five NWFZs: Latin America and the Caribbean (Treaty of Tlatelolco, 1967), the South Pacific (Treaty of Rarotonga, 1986), Southeast Asia (Treaty of Bangkok, 1997), Africa (Treaty of Pelindaba, 2009) and Central Asia (Treaty of Semipalatinsk, 2009). There are currently three nuclear-weapon-free geographical regions: the Antarctic as established by the 1959 Antarctic Treaty; outer space as established by the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies; and the seabed as established by the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof. There is currently one state with nuclear-weapon-free status, also known as a single-state NWFZ: the UN recognized Mongolia's nuclear-weapon-free status in 1998 through General Assembly Resolution 53/77.[7]

A demilitarized zone, sometimes referred to as a "zone of peace," can be defined as "a world region in which there are no military weapons of any kind, nuclear or conventional; no military personnel, equipment or bases."[8] There are two such cases of demilitarized zones through treaty that are relevant to this study. The Antarctic Treaty of 1959 established the Antarctic as a demilitarized zone, with the exception that scientific research can be conducted in the territory by military personnel using military equipment.[9] The Svalbard Treaty of 1920 recognizes the sovereignty of Norway over the Arctic Archipelago of Svalbard. Norway's exercise of sovereignty over the islands is, however, constrained by some of the treaty's provisions. Most of these constraining provisions have to do with economic activity and resources extraction. Article IX of the treaty, however, prohibits Norway from the development of any military infrastructure or fortifications on the islands, making Svalbard a demilitarized zone.[10]

While a denuclearized zone and a NWFZ may establish similar end states – geographical zones in which the use or placement of nuclear weapons are prohibited via legal means – they arrive there through different routes and produce differing legal mechanisms. A NWFZ does create a denuclearized geographical zone, but a treaty that establishes a denuclearized zone through general demilitarization has not created a NWFZ. While this may seem semantic, the differences in character and procedure do matter for they hint at the distinctiveness of NWFZs. NWFZs are regional in nature, cover populated areas and emanate from the sovereign states within the prospective zones. This contrasts with treaties that address weapons of mass destruction in particular geographic areas like the seabed, Antarctica or outer space. While these different treaties are often grouped together, doing so undermines a proper understanding of the distinct objectives of NWFZs and the services they render to the goals of non-proliferation and arms control.

These distinctions, and others, gain clarity through the UN's established criteria for NWFZs and how the objectives of NWFZs have come to be understood, both of which will be addressed in the next section.

The Evolution of NWFZs through the UN System

How did the international community come to its current understanding of NWFZs? The UN made its first study of the concept of NWFZs in 1975. A follow-up report was due in 1986 but was never released as the parties involved could not consensually agree on its contents. The 1975 UN Comprehensive Study found that NWFZs have three core objectives: (1) to enhance the security of states in the zone; (2) to contribute positively to world security; and (3) to stem the proliferation of nuclear weapons.[11] It must be noted, however, that while the government-appointed experts who drafted the Study agreed that the prime objective of NWFZs was security enhancement, they could not agree whether such zones would actually achieve this objective.

The Tenth Special Session of the General Assembly, held in 1978 and dedicated to disarmament, stated in its outcome document that NWFZs should be established on the basis of agreements or arrangements freely arrived at among the states of the zone.[12] In 1993, the Disarmament Commission unanimously adopted the "Guidelines and recommendations for the regional approaches to disarmament within the context of global security," which essentially confirmed the validity and desirability of regional non-proliferation and disarmament efforts while spelling out how such efforts enhance international security.[13] In 1999, the UN Disarmament Commission recommended a set of principles and guidelines for the establishment of NWFZs, which, building upon previous UN work, included (1) NWFZs should be established on the basis of arrangements freely arrived at; (2) the initiative to establish a NWFZ should emanate from the states within the proposed zone; (3) the nuclear-weapon states should be consulted during the treaty negotiations to ensure the necessary protocols to establish negative security assurances (NSAs) are viable; and (4) a NWFZ should in no way curtail zonal states' right to the peaceful use of nuclear energy.[14] In 1995, the Review and Extension Conference for the Nuclear Non-Proliferation Treaty (NPT) noted in its outcome document that these "zones contribute to strengthening the international non-proliferation regime," and that "the cooperation of all the nuclear-weapon states and their respect and support for the relevant protocols is necessary for the maximum effectiveness of such nuclear-weapon-free zones and the relevant protocols."[15]

In 1999, the UN Disarmament Commission submitted to the General Assembly a condensed version of the 1975 study entitled "Establishment of Nuclear-Weapon-Free Zones on the Basis of Arrangements Freely Arrived at Among the States of the Region Concerned," in which it outlined the non-binding guidelines meant to assist regional states in the development of NWFZs.[16] The 2010 NPT Review Conference produced a "Plan of Action" which treaty members consensually adopted within their outcome document.[17] Action 9 emphasized that non-nuclear-weapon states (NNWSs) can further contribute to global non-proliferation efforts by establishing NWFZs in regions where they do not yet exist, and encouraged NWSs to sign and ratify all relevant protocols and reconsider any related reservations.[18]

Thus, the UN has routinely addressed the concept of NWFZs, and has framed it as a mechanism of non-proliferation and a means to achieve general and complete disarmament. States have, nonetheless, formed divergent opinions on how exactly NWFZs contribute to the goals of non-proliferation and disarmament and some of the associated obligations. Since the first NWFZ proposal was submitted to the UN in 1961, the UN and its disarmament organs have developed and evolved in their collective understanding of NWFZs; and it is clear that NWFZs are internationally recognized legal instruments.

Motivations and Objectives of NWFZs

The idea of establishing geographical zones completely free of nuclear weapons predates the NPT (signed in 1968) and can be traced to inter-state tensions in the 1950s. The Cold War, while ultimately a confrontation between two superpowers, drew many states into the fringes of conflict. This was obviously the case in the 1962 Cuban Missile Crisis, but one can also think of the hostilities in Vietnam, Korea, Afghanistan, the situation in Nicaragua, the Berlin Crisis or nuclear weapons testing in the Sahara Desert or South Pacific. Thus, a key driver of the initial NWFZ proposals was the threat posed by the actions of the NWSs within the context of the Cold War, which were not confined by any geographic demarcation. This time frame was certainly marked by superpower confrontation but also by arms control and disarmament milestones. The 1959 Antarctic Treaty demilitarized the Antarctic by prohibiting military bases, manoeuvres and weapons testing (Article I), in addition to banning nuclear explosions and radioactive waste dumping (Article V).[19] The Partial Test Ban Treaty (PTBT) was signed in 1963 and prohibited all nuclear test detonations except those conducted underground.[20] These treaties were soon followed by the Outer Space Treaty of 1967 and the Seabed Treaty of 1970, which denuclearized two large geographic swaths. Taken together, these multilateral achievements in the span of eleven years demonstrated a serious appetite among states to curtail the use and legitimate scope of nuclear weapons. The development of NWFZs surely benefitted from this momentum and the strategic environment created by these treaties.

Scholars who speak in favour of NWFZs tend to agree that the main objective is to contribute to regional cooperation, peace and stability.[21] They understand the denuclearization brought about through a NWFZ to have a direct correlation with strategic stability.[22] The ways in which NWFZs enhance peace and security through non-proliferation and disarmament can be grouped into four specific categories.

First, NWFZs reduce nuclear risk regionally and globally. All established NWFZs were, at least in part, instigated by a zonal state's desire to reduce the opportunities for conflicts and avoid being caught up in a nuclear-armed

struggle. NWFZs establish legal frameworks through which the stationing of nuclear weapons is prohibited in the zone, and the absence of these weapons reduces risk and enhances safety. Negative security assurances, established through protocols signed onto by the NWSs, create a legal commitment for NWSs not to use or threaten to use nuclear weapons against the zonal states. While NWFZs cannot solve the security dilemma, they do establish an upper limit on associated arms races that are a consequence of the security dilemma. Reducing nuclear risk has been a focus of non-nuclear-weapon states, and has been especially championed by New Zealand, a prominent NWFZ state, through the de-alerting movement which seeks to take nuclear weapons off their "hair-pin triggers."[23]

Second, NWFZs are a concrete renunciation of the use of nuclear weapons as an instrument of statecraft in specific regions. The Treaty of Semipalatinsk, establishing a NWFZ in Central Asia, made this very clear since the area is a strategic theatre and has extensive access to fissile materials, plutonium stockpiles and established nuclear weapons testing sites. In signing and ratifying the treaty, zonal states made a clear choice to renounce the opportunities offered by these realities and to drastically reduce the chances of proliferation.[24] As noted, when legally confirming their non-nuclear status and forgoing the possibility of ever acquiring such weapons, states fundamentally reject the core tenet of nuclear deterrence theory. They do not see a security benefit to acquiring nuclear weapons, only a threat, and thus reject them and the associated theories as an instrument of statecraft.

Third, NWFZs strengthen nuclear non-proliferation norms and obligations at both regional and global levels. NWFZs prevent the proliferation of nuclear weapons, thus enhancing states' obligations vis-à-vis non-proliferation under the NPT. NWFZs are an enhancement of NPT states' obligations since the NPT, in Articles I and II, prohibits NNWSs from acquiring or developing nuclear weapons, but does not explicitly prohibit the extra-territorial stationing of nuclear weapons.[25] Participation in a NWFZ fills this gap in the web of non-proliferation obligations for both nuclear- and non-nuclear-weapon states.[26]

NWFZs also have a link to the NPT Article VI commitment to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament."[27] While NWFZs' connection to non-proliferation is quite clear, there is less of a clear link to disarmament. NWFZs have thus far essentially confirmed the non-nuclear status of a group of states; they have not yet been vehicles for the active nuclear disarmament of nuclear-weapon states. If the establishment of a NWFZ requires a NWS to dismantle or remove its nuclear weapons from a prospective zonal state's territory, then a NWFZ would make a certain contribution to nuclear disarmament. Thus, the legal precedents established by NWFZ treaties and future NWFZs certainly have the potential to become mechanisms of disarmament.

Fourth, NWFZs offer avenues for confidence building and cooperation among states. While none of the current NWFZ treaties sought to resolve conflict, they have nonetheless bolstered confidence and cooperation among zonal states. The negotiations towards, and completion of, NWFZ treaties bolster the NPT Article VI obligation to undertake "negotiations in good faith on effective measures relating to cessation of the nuclear arms race," proving that such negotiations are possible and enhancing the environment of trust and confidence for such negotiations.[28] A key contribution NWFZs make to cooperation and confidence building is through multilateral institution building. For example, the African NWFZ has an established connection between the zone's

implementing body, the African Commission on Nuclear Energy (AFCONE), and the African Union Commission's Peace and Security Department.[29] The Latin American NWFZ, with its own Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL), is the most institutionalized zone. The Latin American zone also has the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC), which cooperates closely with OPANAL, essentially combining bi-lateral and multilateral verification mechanisms. The two regimes in Latin America worked together to avoid the break-out of two potential nuclear-weapon states, Brazil and Argentina, as they competed strategically and each enjoyed robust nuclear power industries. In addition, all NWFZs rely on the International Atomic Energy Agency (IAEA) to verify compliance.

Interestingly, the negotiations for the establishment of NWFZs have not been undermined by the existence of regional tensions or conventional conflicts between prospective zonal state members. Negotiations for the African NWFZ took place during the First Congo War and came into force while interstate conflict persisted in the Horn of Africa and Sudan.[30]

While NWFZs are regional in nature, their implications for non-proliferation and disarmament are not confined to the geographic strictures of their treaties. Additional protocols for negative security assurances create legal obligations for extra-zonal states, and transit restrictions affect the deployment abilities of NWSs. Moreover, NWFZs play a key role in the theory of zonal disarmament, which advocates for the progressive geographic denuclearization of the world by creating buffer zones, reducing tensions, building confidence and delegitimizing nuclear weapons.[31] Zonal disarmament should not be thought of in geographic terms alone but in normative terms as well (something that the new Treaty on the Prohibition of Nuclear Weapons (TPNW) is certainly trying to enhance).[32] Mexican Nobel Laureate and diplomat Alfonso García Robles put it aptly when he said, "we should attempt to achieve a gradual broadening of the zones of the world from which nuclear weapons are prohibited to a point where the territories of Powers which possess those terrible tools of mass destruction will become something like contaminated islets subjected to quarantine."[33]

A Brief History of Proposals, Treaties and Declarations

In January of 1958, Soviet Premier Nikolai Bulganin proposed the idea of a NWFZ in the Nordic region in a letter to his counterpart in Norway. The idea would be further elaborated by Nikita Khrushchev in his 1959 Riga Speech, in which he spoke of an "atom-and-rocket-free zone."[34] Additionally, in 1958, a proposal for a NWFZ in Central Europe was advanced by Poland's Minister of Foreign Affairs, Adam Rapacki. The proposed zone included Poland, Czechoslovakia and East and West Germany. This proposal became known as the Rapacki Plan. The key rationale for the establishment of the zone was Poland's fear that the Western Bloc would station nuclear weapons in Western Germany, provoking a symmetrical response by the Soviets through the stationing of nuclear weapons on Polish territory. The Rapacki Plan included several provisions, which, although never realized, would later be taken up in formal NWFZ treaties. These included a prohibition on the stationing, manufacturing and stockpiling of nuclear weapons and their delivery systems; and the nuclear-weapon states were expected to respect the nuclear-weapon-free status of the zone and not use or threaten to use nuclear weapons against the zonal states.[35]

The Rapacki Plan was the first of many proposals to be made to denuclearize continental Europe, whether in whole or part. Romania proposed the denuclearization of the Balkans and the Soviet Union proposed the establishment of a NWFZ in the Mediterranean, both of which were unsuccessful.[36] In the mid-1990s Belarus suggested creating a NWFZ comprised of all states situated between the Black and Baltic Seas.[37] This Central European proposal was initiated out of concern that NATO could deploy tactical nuclear weapons in the region (although NATO declared it had no plan to do so in 1996). Although none of these plans have come to fruition, work is still being done in support of efforts to denuclearize Europe.[38] It should be noted that all of these proposals were rejected by the Western nuclear-weapon powers, which argued that nuclear weapons were necessary to counter-balance the numerically superior conventional forces of their Cold War adversaries.

In Africa, proposals for a NWFZ were instigated by French nuclear tests and fears of the South African nuclear weapons program. In 1961, a proposal was presented through the UN for a pan-African NWFZ, and in 1964 the first meeting of the Organization of African Unity (OAU) called for the establishment of a NWFZ. Once South Africa dismantled its nuclear weapons program and acceded to the NPT, serious negotiations began. The Treaty of Pelindaba was opened for signature in 1996 and came into force in 2009, establishing the entire African continent as a NWFZ.

Asia and the Pacific are also regions in which NWFZ have been proposed and adopted. In 1983, Australia proposed a NWFZ for the South Pacific due to the growing concern of the NWSs' activities in the region, particularly nuclear test explosions. Between 1946 and 1996, the US, Britain and France conducted 321 nuclear tests in the Pacific.[39] The proposal was negotiated at the South Pacific Forum and in 1985 all members of the Forum signed the Treaty of Rarotonga.[40]

In Southeast Asia, proposals for a NWFZ were first addressed as part of the 1971 Declaration on the Zone of Peace, Freedom and Neutrality issued by the Association of Southeast Asian Nations (ASEAN). In the early 1990s, ASEAN established a working group among its members to revitalize the negotiations on the proposed NWFZ. Their work especially gained momentum after the US military closed its base in the Philippines. The Treaty of Bangkok was signed in 1995, creating a NWFZ in Southeast Asia comprised of the ASEAN members.[41]

Proposals have also been made for a South Asian NWFZ to address the mutual nuclear threat that India and Pakistan pose to one another. Each year from 1974 to 1997, Resolutions were advanced in the UN General Assembly calling for such a zone. Pakistan voted in favour of these resolutions until the nuclear weapons tests of 1998 conducted by both countries. India has consistently rejected these calls, arguing that they do not sufficiently deal with its core security concerns, namely the nuclear weapon threat posed by China. Nonetheless, support remains for the establishment of a South Asian zone. Two main proposals have been presented. First, that Bangladesh, Nepal and Sri Lanka declare themselves as single-state NWFZs, like Mongolia has, and seek international recognition. Second, the Treaty of Bangkok could be extended to include these states.[42]

In Central Asia, Uzbekistan first made proposals for a NWFZ in 1993, which were followed by joint proposals with Kyrgyzstan in 1994 and 1995. Formal negotiation between all Central Asian states – Uzbekistan, Kyrgyzstan, Kazakhstan, Tajikistan and Turkmenistan – began in 1997. Negotiations were complicated since the proposed zone bordered two NWSs, China and Russia, and was in close proximity to two other NWSs, India and Pakistan.

Matters were also complicated by the fact that the Soviet Union had conducted the bulk of its nuclear test explosions in the territory and nuclear weapons were only withdrawn in the early 1990s. Moreover, some zonal states were members of the Treaty of Tashkent, a collective security arrangement of which Russia is a member and can extend security guarantees to treaty members. These issues were eventually overcome, and the Treaty of Semipalatinsk was signed in 2006 and entered into force in 2009. It is the first and only NWFZ entirely located in the Northern Hemisphere.[43]

In Northeast Asia, proposals have also been put forth to establish a NWFZ on the Korean Peninsula. Upon North Korea accepting the NPT Safeguards in 1992, North and South Korea signed a Joint Declaration on the Denuclearization of the Korean Peninsula. The Declaration was to establish a prohibition on the testing, manufacturing, production, reception, possession, storage, deployment or use of nuclear weapons. While the exchange of the appropriate instruments to bring the Declaration into force occurred, North Korea decided to withdraw from the NPT in 1993, which led to the collapse of the Declaration that, if it had come into fruition, would have established the Korean Peninsula as a NWFZ. Prospects were further undermined after North Korea conducted nuclear tests in 2006 and 2009.

The Middle East has been the subject of NWFZ proposals since 1974. One year after the 1973 Arab-Israeli War, the Council of the League of Arab States adopted a resolution in favour of the establishment of a NWFZ in the Middle East.[44] Months later Iran and Egypt co-sponsored Resolution 3263 in the General Assembly of the UN, calling for a NWFZ in the Middle East.[45] The Resolution's second operative paragraph called upon states in the region to "proclaim solemnly and immediately their intention to refrain, on a reciprocal basis, from producing, testing, obtaining, acquiring or in any other way possessing nuclear weapons," and states of the region were also called upon to accede to the NPT.[46] These declarations and accessions to the NPT were expected to take place before consultations and negotiations began, something that would become a serious sticking point.[47] President Hosni Mubarak of Egypt was a key advocate for the zone, and in 1990 wrote to the Conference on Disarmament to suggest that the proposed zone include a prohibition on all weapons of mass destruction (WMD). In 1991, the Security Council lent credence to this idea through Resolution 687, which, while establishing a ceasefire in Iraq, stated that, "recalling the objective of the establishment of a nuclear-weapon-free zone in the region of the Middle East, [it was] conscious of the threat that all weapons of mass destruction pose to peace and security in the area and of the need to work towards the establishment in the Middle East of a zone free of such weapons."[48] Yet, between 1974 and 1995, little progress was made. The 1995 NPT Review and Extension Conference changed that. In negotiating the permanent extension of the NPT, the Arab states bargained with the NWSs to have a resolution on the Middle Eastern NWFZ in exchange for their support for the permanent extension. Despite this, little progress was made until the Arab states pushed again in the 2010 NPT Review Conference and had included in the outcome document a call on the UN Secretary General to convene a conference on the establishment of a NWFZ in the Middle East by 2012. Despite these efforts, no conference was convened in 2012. Again, the Arab states, led by Egypt, made a push in late 2018 to have a conference convened. They did so through a resolution in the General Assembly that called upon the Secretary General to convene an annual conference beginning in 2019 until all parties reach consensus on a WMD-free zone in the Middle East.[49] The first conference was held in November 2019, with all states of the region participating, save Israel, and all nuclear-weapon states participating, save the US.[50]

Advocacy for a blanket WMD-free zone may seem redundant by virtue of the Chemical Weapons Convention (CWC) and the Biological and Toxin Weapons Convention (BTWC). However, neither convention has universal adherence to the treaties and the US has opposed the introduction of more rigorous inspection and verification systems. Thus, a regional WMD-free zone could enhance security and cultivate norms in the absence of international progress while addressing nuclear weapons. In the Middle Eastern context, the relevance of these proposals has been highlighted by the recent atrocities in the Syrian civil war and the tumultuous Joint Comprehensive Plan of Action (JCPOA) process.

Mongolia, in 1992, declared the entirety of its territory to be nuclear-weapon-free, and in 2000 passed a law to preserve its territory as such. In addition to enshrining its NPT obligations into law, it also specified the prohibition of the transportation of nuclear weapons, whether in whole or in part, and of nuclear waste dumping or transport.[51] In response to this, the NWSs issued a "Statement on security assurances in connection with Mongolia's nuclear-weapon-free status," through which they jointly renewed their commitment to seek immediate UN Security Council action to provide assistance to Mongolia should Mongolia be the victim of an act of aggression or object of a threat of aggression using nuclear weapons.[52] The nuclear-weapon states also confirmed their unilateral negative security assurances with Mongolia.[53] In this way, Mongolia was able to attain both positive and negative security assurances from the NWSs by declaring itself a NWFZ and having its status internationally recognized. Mongolia remains the first and only internationally recognized single-state NWFZ to date.[54]

Other single states have nonetheless taken steps to enhance their non-proliferation obligations. In 1999, the Austrian Parliament passed the "Constitutional Law in Favour of a Nuclear-Free Austria," which prohibited the testing, production, storage or transport of nuclear weapons (including fissile material) within or through Austria.[55] Nuclear power plants were also prohibited. New Zealand, as a party to the South Pacific NWFZ through the Treaty of Rarotonga, enhanced its obligations by restricting all nuclear activities in its territory, including a prohibition on foreign warships armed with nuclear weapons entering its maritime exclusive economic zone (EEZ), internal waters, territorial sea, ports and airspace. New Zealand also prohibited the entry of nuclear-powered vessels into its internal waters. Latvia sought likewise to prohibit nuclear-powered and nuclear-laden warships from entering its internal waters, but eventually reversed its decision so as to ensure it could participate in joint defence exercises through NATO.[56] Moreover, Denmark, Norway and Spain prohibit the deployment of nuclear weapons on their territory during peacetime, while Iceland and Lithuania prohibit deployment at any time, and Iceland, Denmark and Norway further prohibit the passage of nuclear-laden ships through their ports (despite all states having membership in NATO).[57]

The Established Zones and their Treaties

All five NWFZ treaties prohibit the possession, manufacturing, acquisition by other means, testing, stockpiling and stationing of nuclear weapons within their agreed zonal boundaries. Moreover, each of the treaties includes verification measures that surpass each state's NPT verification obligations. Nonetheless, each treaty includes unique provisions, and each deals with certain zonal elements differently.

The Treaty of Tlatelolco (1967) established the first NWFZ in a densely populated area. The Treaty also established the first, and to this day the only, specialized international agency to oversee compliance and verification within a NWFZ – OPANAL. The Treaty is the most adhered to with 33 states being parties, and the most internationally recognized and respected since all five NPT-recognized NWSs have signed and ratified the Treaty's additional protocols.[58] The Treaty includes two additional protocols. The first protocol addresses the extra-continental states that are internationally responsible, whether *de jure* or *de facto*, for territory within the zone (namely, France, the Netherlands, the US and the UK), and creates a binding commitment on those states to apply standards of military denuclearization to their respective zonal territories.[59]

The Treaty of Rarotonga (1985) created the only NWFZ to ban peaceful nuclear explosions. It also includes an additional protocol that commits NWSs to not test weapons within the zonal boundaries (all NWSs have signed and ratified the protocol except the United States). The treaty was the first of its kind to include a zonal state that was in a nuclear alliance with a NWS, namely Australia through the Australia, New Zealand, United States Security Treaty (ANZUS). The Treaty, moreover, was the first to explicitly ban nuclear explosive devices in unassembled or partly-assembled forms, something that the Treaty of Pelindaba also decided to prohibit.

The Treaty of Bangkok (1995) established the only zone to include within its boundaries the EEZs, straits and continental shelves of its zonal states, although the Treaty does note that the rights of states to freedom of the high seas and innocent passage, or transit passage of ships and aircrafts, are not to be prejudiced. Another distinguishing feature is the Treaty's stipulation that in the case of a breach of protocol (i.e. the use or threat of use of nuclear weapons) the Executive Committee of the Treaty will convene in a special meeting to decide on appropriate actions. This provision remains rather aspirational as none of the NPT-NWSs have either signed or ratified the negative security assurance protocol. Some commentators have argued that this is a consequence of the Treaty's attempt to extend its boundaries into the EEZs of its zonal states, with which the US has taken serious issue.[60]

The Treaty of Pelindaba (1996), which was negotiated while South Africa maintained nuclear weapons, uniquely contains provisions for the dismantlement of existing nuclear weapon facilities under IAEA supervision. The Treaty also includes prohibitions on the dumping of nuclear waste, and on armed attacks against nuclear facilities.

The Treaty of Semipalatinsk (2006) is unique in explicitly prohibiting the undertaking of any research linked to nuclear weapons within the zone. This is understood to be a consequence of the history of the zonal states, since Kazakhstan was home to the bulk of the USSR's testing and research centres for nuclear weapons. Similar to the Treaty of Rarotonga, the zone includes states that are members of a collective security arrangement with a NWS, namely Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan through the Collective Security Treaty Organization (CSTO) with Russia.

Jozef Goldblat, a leading expert in NWFZs, analyzed four of the zones (Tlatelolco, Rarotonga, Pelindaba and Bangkok) in 2002 and highlighted twelve key deficiencies. Deficiencies common to all four of the zones considered include (1) failure to specify that the denuclearization provisions are valid in both times of peace and war; (2) failure to explicitly ban the presence of nuclear weapon support facilities; (3) failure to explicitly ban

the transit of nuclear weapons through the zones, including via port visits or aircraft transport; (4) the nuclear-weapon powers' undertaking to respect the denuclearized status of the zones is unverifiable; and (5) the assurances given by the nuclear-weapon powers' not to use nuclear weapons against zonal states are conditional.[61]

While these deficiencies endure, NWFZs have significant contributions to peace and security, internationally and regionally. Fundamentally, such zones reduce the areas of potential proliferation, thus making the management of actual proliferation threats easier to deal with. Moreover, the establishment of these zones and their associated negative security assurances has reduced the applicability of nuclear weapons by restricting the actual geographic scope of deterrence strategies. These zones promote regional security and stability by reducing nuclear risk and by establishing a ceiling to military build-up. NWFZs also enhance states' non-proliferation obligations and act as a safety net should the NPT regime ever fail.

In the case of the South Pacific, declassified documents show that the Australian defence establishment was advocating for the development of an indigenous Australian nuclear weapons program up until at least 1972;[62] thus the Treaty of Rarotonga both prevented Australia from nuclearizing and ended the testing of nuclear weapons in the region. Some scholars, moreover, have drawn a direct link between the Treaty of Rarotonga and the Treaty of Bangkok, arguing the former was a needed confidence building measure in the region and prevented the development of a regional rivalry (between Australia and Indonesia) through the confirmation of states' commitments to nuclear non-proliferation.[63]

Similarly, some argue that the Treaty of Pelindaba has the potential to be a cross-regional confidence building measure. Specifically, some hope that states like Egypt, Libya and Sudan may join the Treaty of Pelindaba, which would enhance the prospects of a Middle Eastern NWFZ since they are potential parties to the proposed Middle Eastern zone.

NWFZ Proposals for the North

Within the context of the Cold War, the Arctic region developed a unique strategic significance for two inter-related reasons: (1) the geographical proximity of the United States and the USSR/Russia; and (2) the advantage of staging weapon systems in the region because of this proximity.[64] Thus the Arctic became one of the most militarized regions in the world during the Cold War. Such militarization prompted immense attention from non-proliferation, arms control and disarmament advocates who, through various proposals, sought to prevent the Arctic region from becoming a theatre for superpower conflict.

The history and evolution of disarmament and non-proliferation efforts focused on the Arctic can be broadly divided into three categories: (1) arms control efforts through international bodies that include the Arctic region; (2) Nordic NWFZ proposals; and (3) Arctic NWFZ proposals. These proposals have generally emerged and evolved over time in this order.

Early Multilateral Efforts

On the international stage, the topic of arms control measures in the Arctic first appeared in 1957 in the United Nations Disarmament Committee. As Terrence Armstrong recounts, "the western powers proposed to the Disarmament Commission a measure to safeguard against the possibility of surprise attack. This measure was an inspection system to cover the whole of the United States, the U.S.S.R. and Canada; but if this were unacceptable, an Arctic area…was put forward as an alternative."[65] This topic subsequently appeared on the agenda of the Security Council in 1958, when the USSR requested a meeting to address "[u]rgent measures to put an end to flights by United States military aircraft armed with atomic and hydrogen bombs in the direction of the frontiers of the Soviet Union."[66] The 817th meeting of the Security Council on 2 May 1958 addressed this topic and considered a draft resolution put forward by the United States. Draft resolution S/3995 noted the USSR's and US' growing capabilities for a massive surprise attack and the growing importance of the Arctic region, and thus recommended that "there be promptly established the Northern zone of international inspection against surprise attack, comprising the area north of the Arctic Circle with certain exceptions and additions."[67] The draft resolution failed to pass due to a USSR veto,[68] noting its suspicion that such an arrangement would be used by the US for intelligence collection purposes and thus did not represent an honest and good faith arms control proposal.[69] The American proposal for an inspection system should be understood as a consequence of the Eisenhower administration's pursuit of the Open Skies plan, which over several decades evolved into the Treaty on Open Skies.[70]

The inspection system proposal did not die in the 817th meeting of the Security Council. In 1960 Canada's Prime Minster spoke in the UN General Assembly declaring that "Canada is prepared to make available for international inspection and control any part of the Canadian Arctic territory in exchange for a comparable concession on the part of the Soviet Union."[71] The Danish Foreign Minister made a similar pledge in offering "the vast territory of Greenland as part of a mutual balance inspection arrangement."[72] It should be noted that these proposals failed, due in part to reservations by the US or USSR regarding geographical asymmetries in the zone boundaries which would engender strategic imbalances unacceptable to one or the other side. This reservation is worth noting as it is a consideration that has had a decades-long staying power and that has featured prominently in other arms control and disarmament proposals for the Arctic region.

Nordic NWFZ Proposals

The idea of a Nordic NWFZ was first proposed by the USSR, although the idea was subsequently most publicly campaigned for by the Finnish Government. In January of 1958, Soviet Premier Nikolai Bulganin presented the idea in a letter to his counterpart in Norway.[73] The proposed plan was made public by Khrushchev in his 1959 Riga Speech, in which he spoke of an "atom-and-rocket-free zone."[74] This plan was more robustly formulated and campaigned for by the Finish President, Urho Kekkonen, beginning in 1963. Kekkonen proposed a NWFZ in the Nordic area that would prohibit the possession and stationing of nuclear weapons. While at that time the Nordic region did not have any nuclear weapons, possessed or stationed, Kekkonen's argument was that the status quo based on national decisions would benefit from being confirmed in some sort of binding multilateral arrangement.[75] While this initiative was never fruitful, it lingered in diplomatic channels for a while, which has

led historians to note that the "Kekkonen Plan," as it became known, had three waves of prominence: 1962-65, 1972-75 and 1978.[76]

The Kekkonen Plan failed to be realized for a host of reasons, prominently including (1) Norwegian and Danish refusal to change their policy on the establishment of foreign military bases on their territory and the stationing of foreign nuclear weapons on their territory in non-peace times; (2) the failure to withdraw ballistic missiles and tactical nuclear weapons from territories bordering the proposed Nordic Zone (i.e. Central Europe and Western Soviet territory) as a guarantee mechanism against their use on the zone; and (3) the inclusion of the US and USSR in the negotiations and balance of power considerations in continental Europe.[77]

These initiatives need to be understood in the security context of the day, for they were not simply virtuous disarmament aspirations, but inherently linked to strategic efforts within continental Europe to retain/re-establish the balance of power between the US/NATO and the USSR/Warsaw Pact. NATO was considering deploying intercontinental ballistic missiles (ICBMs) in continental Europe to offset the Soviets' conventional forces' superiority. It should also be flagged that Norway's enduring criticism of the Finnish proposals was rooted in the belief that the proposals lacked the necessary trade-off to entice Norway, for why should Norway give up its nuclear option without any decrease in the threat from the massive nuclear arsenal in the USSR's Kola Peninsula? Thus, Norway was more persuaded by the commitments that NATO was offering her in terms of security guarantees.[78]

The Nordic NWFZ proposal was revived in 1987 by Mikhail Gorbachev in his famous Murmansk speech of October 1987. Gorbachev proclaimed that the USSR:

> is in favor of a radical lowering of the level of military confrontation in the region. Let the North of the globe, the Arctic, become a zone of peace. Let the North Pole be a pole of peace. We suggest that all interested states start talks on the limitation and scaling down of military activity in the North as a whole, in both the Eastern and Western Hemispheres.[79]

Gorbachev's call for an "Arctic zone of peace" was not a call for a pan-Arctic NWFZ, but rather a reiteration of previous Nordic NWFZ proposals with a host of complimentary international cooperation initiatives attached to it. These complimentary initiatives included (1) limiting naval activity in seas adjacent to the Nordic region; (2) peaceful cooperation in exploiting the resources of the North and Arctic; (3) scientific research in the Arctic; (4) cooperation between Northern countries in environmental protection; and (5) the opening up of the Northern Sea Route to foreign vessels.[80]

While the Murmansk speech is often hailed as an extraordinary disarmament offer on the USSR's part within the context of *perestroika*, its real novelty was that it represented "an authoritative exposition of a unified approach to Arctic policy by the Soviet Union," for it "reflected a broadening of the concept of international security, a close connection between its civil and military elements, and an understanding that economic development and environmental protection are both, in considerable measure, contingent upon controlling the arms race."[81] Several Western observers dismissed the USSR's new Arctic initiative as a public relations ploy, or more seriously as a sly attempt by Gorbachev to attain uneven advantages in the Arctic through arms control measures.[82]

Other scholars, however, point to the subsequent Soviet Arctic policy in the wake of the Murmansk speech as proof that the Soviets were seriously pursuing genuine international cooperation in the Arctic, for "more has been done by the Soviet Union to develop Arctic cooperation since the Murmansk speech than during the previous seventy years."[83] In the military context, however, some would counter this line of argument by highlighting that the subsequent Arctic policy of the USSR was primarily focused on scientific, resource and social sectors. That is, the militarily strategic nature of the Arctic was not addressed head on, which seems to substantiate the claim that the renewed Nordic NWFZ proposal by Gorbachev was simply a self-serving repackaging, or elaboration, that was tacked on to the broader social reform he was pursuing. As Charles Emmerson has observed, "[t]he Murmansk initiative was less generous than first appeared. Given that the Northern Fleet carried the bulk of the Soviet Union's submarine-launched nuclear weapons, Gorbachev's offer to remove SSBN's [(ballistic missile submarines)] from the Baltic Fleet was a political gesture, intended to draw Scandinavian states closer to the Soviet Union without making any real dent in Soviet strategic nuclear capability."[84]

A key benefit to reviewing the Nordic NWFZ proposals is that their non-realization highlights many of the enduring challenges – geographic, political and military – that have stymied such efforts, been levied against Arctic NWFZ proposals and which will likely be sticking points in future negotiations. Arlene Idol Broadhurst notes seven major issues revealed by the non-realization of the Nordic NWFZ proposals: "[1] zonal boundaries; [2] definition of nuclear weapons; [3] transit; [4] stages of acceptance; [5] external guarantees; [6] verification and; [7] existing security commitments."[85] These efforts, as they spanned over several decades and across different national governments, revealed that Nordic countries have preferred to negotiate such a security framework within a wider European framework, and that any NWFZ must be the consequence of pan-Nordic collaboration.[86] Such collaboration has proved to be difficult, if not elusive. The creation of a NWFZ in a given region establishes a security regime, which can prove problematic when zonal states already belong to a collective security regime (i.e. NATO). While Sweden, Finland and Iceland were rather open to the idea of a Nordic security regime, essentially formalizing their neutrality from international conflict, Norway and Denmark have been more reticent to the idea, struggling to see how such a zone could be compatible with their NATO membership.[87]

An Arctic NWFZ

Most of the literature points to an article by Alexander Rich and Aleksandr Vinogradov in 1964 as the first proposal for an Arctic NWFZ.[88] Interestingly, this proposal was jointly penned by an American and a Soviet. The proposed agreement stipulated that the region "would contain no nuclear weapons or delivery vehicles, long-range bombers or missiles."[89] This approach did not include the supporting infrastructure for such systems, including "military installations *per se*, airfields and bases," or "defensive installations such as radar."[90] They proposed a zone covering, at a minimum, Alaska and Eastern Siberia, with the possibility of Greenland and the remainder of the Arctic being included at a later date. Their proposal was based on a few key assumptions: (1) the Arctic did not yet have an obvious or developed military value; (2) there were only two main negotiating powers (the US and the USSR); (3) a zonal approach could be taken to ensure strategic balances were respected and maintained; (4) such an arrangement would leave the vast majority of each nation's military establishment

intact; and (5) it could provide a testing ground for inspection systems.[91] The authors explicitly noted that the agreement was aimed at providing opportunities for confidence building and transparency measures so as to enhance the possibility for more general nuclear disarmament agreements to take shape.

While novel, the proposal proved to be exceedingly shortsighted in misdiagnosing the strategic importance that the Arctic region would take on in the years following its publication. Therefore, it is not surprising that the proposal gained little to no traction within the governments concerned, allowing it to essentially fade out of focus for some time. The proposal, nonetheless, marks a clear point in efforts focused on an Arctic NWFZ.

It was not until the early 1980s that new life was given to the idea of an Arctic NWFZ. George Ignatieff, former Canadian Ambassador to NATO and the UN, wrote in *Maclean's* magazine calling for "the gradual denuclearization" of the Arctic region.[92] Ignatieff candidly noted that Canada's defence posture and options had been predominately dictated by alliance commitments, particularly the North American Aerospace Defense Command agreement (NORAD),[93] and that it was time for Canada to ask itself "whether sheltering under the NORAD nuclear shield still serves our defence needs, in view of radically changing circumstances."[94] Ignatieff stressed the importance of securing NATO's northern flank (the circumpolar region stretching from Alaska to Norway's eastern border) against the Soviet fleet in Murmansk, and highlighted the importance of protecting the Northern environment and assuring its security. He called on NATO to adopt a policy banning the deployment of nuclear forces in the "Northern Arctic," in similar fashion to the Antarctic Treaty that banned weapons in the region. He structured his entire proposal under the overarching goal of developing an integrated policy for the Arctic, going as far as suggesting a Royal Commission be set up to "recommend policies on the interrelated aspects of defence, development and denuclearization of the North."[95]

What happened in the 1970s to prompt this far bolder approach to Arctic security, one that shifted from regional approaches to a strong pan-Arctic proposal? Ronald Purver offers a succinct outline for why the attention of strategic analysts shifted to the Arctic. Purver notes that (1) the Soviets undertook a large-scale military build-up on the Kola Peninsula, including their single highest concentration of submarine-launched ballistic missile forces; (2) the growing realization of resource potential in the Arctic; (3) a general deterioration in the international political climate, including hostilities between the superpowers and stagnation in arms control negotiations; (4) the American Strategic Defense Initiative (SDI) introduced a whole new prospective for the role of the Arctic in ballistic missile defence; and (5) the introduction of long-range air-launched cruise missiles (ALCMs) and new strategic bombers on both the American and Soviet sides.[96] These elements taken together marked a significant transformation in the strategic value of the Arctic and thus forced Arctic states to look more seriously into the region, in terms of threats, opportunities and policy options.

Franklyn Griffiths understood these developments well and presented a key Arctic arms control proposal in his 1979 paper, "A Northern Foreign Policy."[97] Griffiths accurately foresaw the evolving strategic importance of Canada's circumpolar North in light of emerging missile technologies and their implications for NORAD, in addition to heavier Soviet and American nuclear submarine traffic in the area. Griffiths, arguing that complete demilitarization was a non-starter, proposed a "regime of limited demilitarization" for the Polar Basin area, which consists of the "Arctic Ocean lying to the seaward of the line demarcating the offshore exclusive economic zone of the littoral states."[98] Specifically, Griffiths proposed that Canada pursue the demilitarization of the

surface waters and ice of the Polar Basin. The objective of this proposal was two-fold: (1) to lay the foundations for a community of Northern states aware that the Arctic is best managed in a cooperative fashion, by (2) freezing the level of military activity and, if possible, reducing it. The proposal was more political in nature since it did not propose serious military reductions, as most military activity was occurring in the water column with submarines, while surface water or over-ice military activity was not seriously being considered at the time. Its intention, therefore, was to act as a confidence building measure "to further a context within which non-military co-operation might better proceed." [99] Arctic specialist Michael Byers endorsed Griffiths' demilitarization proposal in 2013, and advocated that it could be the first military security topic addressed by the Arctic Council since such a treaty would "be relatively easy to negotiate, implement and verify."[100] Intense debate continues as to whether the Arctic Council could begin addressing security-related issues, or if it should even try to do so.[101]

The Panel on Arctic Arms Control, set up in 1989 by the Canadian Centre for Arms Control and Disarmament, built upon Griffiths' proposal. The Panel's 1989 report, "Security Co-operation in the Arctic: A Canadian Response to Murmansk," had as its centrepiece recommendation the establishment of a Central Arctic demilitarized zone.[102] The demilitarized zone, which would include all air, land and sea (surface, sub-surface and seabed) in the seaward area of the Arctic Ocean beyond the EEZs of the circumpolar states, was envisioned as the centrepiece of an Arctic security system which would be reinforced by three complimentary measures: (1) extending the Open Skies Treaty to the Arctic Ocean area; (2) aerial confidence building measures; and (3) naval arms control.[103] The framers of this set of proposals argued that they "constitute a linked, synergistic set of tangible measures which would emphasize the multilateral interest in the search for stability and security in the Arctic."[104] The Panel also made the argument that given the Arctic's unique political context (at the time a zone of confrontation between East and West), the proposed zone should reinforce and complement already existing arms control measures rather than innovate or deal with a new class of security issues. Furthermore, the Panel wholeheartedly endorsed an approach of zonal disarmament, noting that the Central Arctic Demilitarized Zone is a reasonable first step that could be expanded over time through negotiation or unilateral declaration.

The Panel was reconvened three years later in 1993 to reconsider their proposals in light of the extraordinary changes brought about by the end of the Cold War, and produced an updated report entitled "Arctic Security After the Thaw: A Post-Cold War Reassessment."[105] The Panel retracted its central and most ambitious proposal – the establishment of a Central Arctic Demilitarized Zone – citing that "the adoption of a circumpolar perspective on Arctic security was generally deemed premature" and thus the establishment of a security zone was out of reach.[106] The Panel therefore shifted its focus, and proposals, to try and address how consensus on Arctic security could be bolstered. Thus, the new central proposal of the Panel formed a "Circumpolar consensus on an Arctic security agenda."[107] This could be achieved, they proposed, by convening a meeting of security policy analysts from the eight Arctic countries to fundamentally re-examine the case for multilateral cooperation in the Arctic in the post-Cold War era, noting that "the Cold War has eliminated the East-West political axis as a meaningful framework through which to provide for their security in the North."[108] The Panel retained a couple of its previously elaborated confidence building measures, namely naval arms control and co-operative security surveillance, and added efforts to reduce conventional forces on the Kola Peninsula, strengthen institutional mechanisms for Arctic security[109] and promote cooperation on military conversion problems in the Arctic.[110]

The developments of the 1970s also produced comprehensive Arctic NWFZ proposals; foremost among them was from Hanna Newcombe of the Peace Research Institute in Ontario, Canada, in 1981.[111] Newcombe's proposal built from the knowledge gained from the Nordic NWFZ experiments, and also drew on relevant international treaties (the Antarctic Treaty, the Outer Space Treaty and the Seabed Treaty). Importantly, Newcombe did not shy away from clearly stating that "we are looking for *real,* though small at first, strategic sacrifices on the part of the superpowers, or the Arctic Treaty will be of little value."[112] In fact, she firmly rejected the approach of starting from a "non-armament" treaty for the Arctic.

Regarding the territories to be covered by the treaty, Newcombe suggested the denuclearization of all land, water and air space north of 60° latitude. Such a demarcation would specifically mean that the NWSs of the Treaty (the US and Russia) would undertake the obligation not to place nuclear weapons in their Arctic territories, and to remove any auxiliary systems (storage sites, launching equipment and port facilities for nuclear capable submarines) from their Arctic areas. Specifically, the removal of nuclear weapons would be done upon the Treaty entering into force, whereas the removal of supporting systems could be done through an agreed-upon schedule. Newcombe noted that it would be desirable to allow the geographic boundaries of the Treaty to be reasonably flexible, "so as to balance the concessions by the superpowers taking into account their sensitivities from the point of view of global strategy."[113] This approach is what Newcombe called a "flexible North of 60° N plan." This particular approach appeared realistic and advantageous, for the negotiations on borders would only include three of the eight Treaty members – Canada, the US and Russia, conveniently those who have the most to lose and the greatest sensitivities to how the borders will be drawn – seeing that the entire territory of Greenland, Iceland, Norway, Finland and Sweden would be covered by the Treaty.

Newcombe was rather clear-eyed in admitting that the establishment of an Arctic NWFZ that includes the superpowers is a difficult task because of the strategic sacrifices required, but she rightly insisted that without their participation an Arctic NWFZ would not be "a measure tending toward meaningful disarmament."[114] She further noted that one should not have grand expectations for the benefit of an Arctic NWFZ in and of itself, for it would hardly make a dent in the size of nuclear weapon stockpiles, and would be more of a "measure of disengagement."[115] Newcombe nonetheless recalled proposals from the 1960s for zonal disarmament, and conceived of her "flexible North of 60° N plan" as the first stage of such zonal disarmament.

An interesting sub-proposal presented by Newcombe was for an international agency to take control of the different warning systems that were operated by national governments at the time. These systems were purely defensive in nature and could continue to operate, under the control of an international organization, as a confidence building and transparency measure.[116]

There has also been local Indigenous support for the prohibition of nuclear weapons in the Arctic. Most notably, the Inuit Circumpolar Council (ICC), at its first conference in 1977, passed Resolution 77-11, entitled "A Resolution on Arctic Policy: Peaceful and safe uses of the Arctic Circumpolar Zone."[117] The resolution resolved that "the Arctic shall be used for peaceful and environmentally safe purposes only," that "there shall be prohibited any measure of military nature," and that "a moratorium be called on emplacement of nuclear weapons."[118] The ICC followed the 1977 resolution with another one in 1983, more explicitly addressing the prospect of a NWFZ, entitled "Resolution on a Nuclear Free Zone in the Arctic."[119] This resolution further

confirmed that the Arctic and sub-Arctic should be used for peaceful purposes, and that "there shall be no nuclear testing or nuclear devices in the Arctic or sub-Arctic." It resolved that the "executive Council of the Inuit Circumpolar Conference lobby the United Nations and various international organizations to encourage members of the United Nations to adopt a policy for a nuclear free zone in the Arctic."[120]

Both resolutions have a strong emphasis on environmental protection, noting particular concern for the environmental consequences of military presence, fortification and testing in the Arctic. These two resolutions also seem to highlight a normative understanding of the Arctic as a "region of peace" on behalf of the ICC, and probably among the Indigenous peoples of the region more broadly. These perspectives have not been lost in the intervening decades. In April 2009, the ICC issued a declaration on Arctic sovereignty, which states that "Inuit had been living in the Arctic from time immemorial" and therefore "Inuit consent, expertise, and perspectives are critical to progress on international issues involving the Arctic."[121] This should be properly understood as the ICC's rejection of approaching an Arctic NWFZ from a purely "southern perspective," that is, without the input or collaboration of local populations.

The most recent and probably most comprehensive proposal for an Arctic NWFZ was presented by Thomas Axworthy at a conference of the Interaction Council in 2010, of which he is the current Secretary General.[122] Axworthy's proposal, in comparison to Newcombe's, represents a significantly more robust and articulate proposal, one which also reflects the changes in geo-politics that have occurred since 1980 and have generally continued to hold.

Axworthy's proposed framework would cover the eight Arctic states' territory as Newcombe laid out, while also including all adjacent seas, seabeds, continental shelves, disputed territories, international waters and airspaces of those territories (similar to the 1989 Panel on Arctic Arms Control). Axworthy specifies that ""Nuclear Weapon Free" should mean all nuclear weapons and armaments, as well as the targeting of nuclear facilities and nuclear testing."[123] In connection to this, Axworthy makes the argument that an Arctic NWFZ should not only prohibit the use of nuclear weapons but should also "prohibit conventional weapons attacks on nuclear installations. This is because the environmental and health fallouts from the latter would resemble the former."[124] Axworthy also makes the interesting point that an Arctic NWFZ treaty should prohibit the conducting of nuclear weapons-related research, noting that while all other NWFZ treaties have been quite silent on this point, the Arctic has a rich history of nuclear weapons testing and research which makes such a provision more applicable. Axworthy, moreover, particularly calls for the treaty to include a provision affirming that all zonal states support the Comprehensive Nuclear-Test-Ban Treaty (CTBT).[125]

While agreeing that the eight Arctic states are the most essential actors to negotiating an Arctic NWFZ, Axworthy does not discount the possible contributions of other states. He notes that "relevant actors" and "Arctic stakeholders" – China, Japan, South Korea, France, the United Kingdom and the European Union – have vested interests in the Arctic and should thus be consulted during the treaty-making process.[126] This being said, Axworthy also concludes that "[i]f it is not possible to get all Arctic states to ratify the NWFZ Treaty then those states which support the initiative should sign on to the treaty and continue to lobby non-signatories to sign on."[127]

Axworthy's proposal is comprehensive and articulate, representing some of the most up-to-date considerations on the topic. The comprehensive nature, however, has the drawback of highlighting the daunting task of negotiating an Arctic NWFZ, making quite stark the numerous delicate issues and possible stumbling blocks. Axworthy − like Newcombe, but to a much greater degree − works from the position that nuclear weapons are catastrophic in nature, and thus seeks to provide a framework for minimization followed by elimination. To buttress this ambitious plan, he includes a system of confidence building measures designed to lay the foundation for intensified cooperation among the Arctic states in order to construct the environment in which an Arctic NWFZ is conceivable and achievable.[128]

Axworthy built upon his 2010 proposal in a 2012 keynote address to a conference entitled "Policy Imperatives for an Arctic Nuclear-Weapon-Free Zone," organized by the Canadian Pugwash Group.[129] Axworthy reiterated the serious challenges to negotiating an Arctic NWFZ as he proposed, namely US and Russian participation and the uneven strategic sacrifices that Russia would be required to make. Convinced of the need to make short- and medium-term progress towards realization of this zone, he proposed that a Nordic-Canadian NWFZ be established. Axworthy based this proposal on a few contentions: (1) proposals have previously been made for Canada to declare the Northwest Passage nuclear-weapon-free;[130] (2) Iceland declared its intention to become a single-state NWFZ and draft legislation to this effect in its Parliament in 2010;[131] (3) in 2011 Denmark endorsed the idea of an Arctic NWFZ in UN proceedings and then included it in its foreign policy statement;[132] (4) all Nordic NATO members and Canada prohibit the stationing of nuclear weapons on their territory in peacetime; and (5) Sweden and Finland have a demonstrated appetite for Arctic arms control.[133] Adele Buckley, a prominent Arctic NWFZ advocate and expert, echoed these points and endorsed the Nordic-Canada NWFZ stepping-stone approach in 2013.[134] In revisiting his initial proposal, Axworthy was not so much revising the end goal – an Arctic NWFZ – but doubling down on the intermediary steps necessary to achieve the goal.

Interestingly, Ronald Purver commented on such an idea some 24 years earlier, stating that "contrary to the apparent expectations of some proponents of a broader Arctic arms control regime, the option of simply joining forces with a nascent Nordic zone is not a viable one."[135] This should not be too surprising seeing that in his review of Arctic-wide proposals he noted that they "appear to be not only unrealistic, in terms of their likely acceptability to the superpowers (as well as to other circumpolar states), but also questionable in terms of their inherent desirability," citing the need to ensure that Arctic arms control does not undermine "the effective functioning of stable nuclear deterrence."[136] Purver instead called for the revival of Franklyn Griffiths' 1979 Arctic Basin partial-demilitarization proposal as a way of addressing what he saw as the most destabilizing military development in the Arctic – anti-submarine warfare (ASW).

The idea of controlling submarine deployment in the Arctic region is not a new one: Mikhail Gorbachev included the idea in his famous Murmansk speech. Prominent Arctic arms control advocates Michael Wallace and Steven Staple highlighted Russian submarine capabilities and their stationing in the Kola Peninsula as a major obstacle to realizing an Arctic NWFZ.[137] Axworthy called for Russia to remove all of its nuclear-capable submarines from its bases in the Kola Peninsula.[138] Proposals to establish an anti-submarine warfare exclusion zone (also referred to as SSBN sanctuaries) in the Arctic have been advocated for as a medium-range confidence building measure by several Arctic NWFZ advocates.[139] Ernie Regehr notes that "strategic anti-submarine warfare (ASW) – sending attacking submarines in pursuit of ballistic missile submarines (SSBNs) – is a classic destabilization scenario,"

and curtailing such activities should be of interest to both proponents of deterrence strategies and arms control advocates.[140] Effective deterrence is based on a reliable second-strike capability, thus efforts to reduce such capabilities (through ASW) create incentives to expand those very second-strike capabilities or to pre-emptively launch against the enemy. Thus, the idea of SSBN sanctuaries or bastions emerged as a way to preserve a credible threat and avoid a destabilizing arms race in the Arctic region. Such proposals are creative in that they are justifiable within the deterrence rationale of the NWSs, while also serving arms control advocates' intermediate ends of reducing chances of military escalation/confrontation in the Arctic to increase chances for cooperation.[141]

Jan Prawitz developed a novel proposal on how to structure an Arctic NWFZ treaty by including additional protocols that sufficiently address the peculiarities of the Arctic region which no international legal precedents bear upon. Prawitz proposes that an Arctic NWFZ "be organized in an umbrella treaty with several additional protocols."[142] The core treaty would outline the fundamental zonal obligations, geographic scope, verification mechanisms and entry into force provisions. The core treaty would be complimented by five protocols: (1) a protocol signed by the six zonal NNWSs specifying their obligations and guaranteeing NATO's endorsement of its members' participation; (2) a protocol signed by the US and Russian Federation that specifies their obligations, agreed to bi-laterally, in regard to their partial territory within the zone and endorsed by the six NNWSs; (3) a protocol signed by all five NPT-NWSs stipulating their commitment to respect the integrity of the zone and provision of negative security assurances; (4) a protocol signed by France to submit the islands of Saint Pierre and Miquelon to the zone and its obligations; and (5) a protocol signed by the zone members, extra-zonal NWSs and other applicable extra-zonal states that would prescribe the absence of nuclear weapons from the zone, including the Arctic Ocean.[143]

Maritime transit rights, as outlined in the United Nations Convention on the Law of the Sea (UNCLOS), are one of the most contentious issues that NWFZs contend with. Innocent passage and freedom of the high seas are understood to be guaranteed under international law through UNCLOS, yet NWFZ advocates argue that the transit of nuclear weapons through a NWFZ fundamentally undermines the non-nuclear character of the zone and should therefore be prohibited. Thus, Prawitz's protocol proposal should be taken seriously and investigated as a legitimate option for guaranteeing the integrity of an Arctic NWFZ. Both Michael Hamel-Green and P. Robert Philp Jr. have argued that UNCLOS does not provide an absolute right to innocent transit, and NWFZ treaty provisions can be crafted to justifiably curtail transit rights in line with UNCLOS.[144] UNCLOS, in defining innocent passage, notes that it is "not prejudicial to the peace, good order or security of the coastal state,"[145] and outlines that the rights of coastal states would be violated if a transiting vessel engages in any of the following activities:

> (a) any threat of use of force against the sovereignty, territorial integrity or political independence of the coastal State, or in any other manner in violation of the principles of international law embodied in the Charter of the United Nations; (b) any exercise or practice with weapons of any kind;…(f) the launching, landing or taking on board of any military device."[146]

Such provisions led Philp to conclude, and Hamel-Green to endorse, that coastal states may "take necessary steps in its territorial sea to prevent a passage which is not innocent, and that the establishment of a regional nuclear weapon free zone banning nuclear weapons transit could be considered such a necessary step."[147]

Hamel-Green has elsewhere argued that states could restrict the transit of nuclear weapons through the Arctic via common non-discriminatory regulations. UNCLOS Article 234 states that:

> Coastal states have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such law and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.[148]

Thus, coastal states of an Arctic NWFZ could regulate against foreign nuclear-laden ship transit, founded upon the understanding that accidents involving vessels with nuclear weapons would cause "major harm" and an "irreversible disturbance of the ecological balance."[149] Taken together, it does appear that there is room for interpretation within UNCLOS and that an Arctic NWFZ could seek to justifiably curtail transit rights through the established zone.

While others advocate for the Arctic Council to begin addressing security issues or, should that not be possible, the creation of an Arctic-specific security institution, Prawitz is unique in arguing for the Organization for Security and Co-operation in Europe (OSCE) to expand its mandate and begin addressing Arctic security. Such a move would require the OSCE to expand its mandate to include Arctic, maritime and weapons of mass destruction issues. Importantly, the OSCE is the only security-related regional multilateral body to which all prospective Arctic NWFZ states belong.

It is clear then that the Arctic region has been subject to comprehensive proposals for the establishment of a NWFZ and a host of intermediary arms control measures. Few are in direct competition with one another and one can see how the proposals have matured, becoming more comprehensive and offering more robust proposals to deal with the enduring issues.

Similar to proposals for other NWFZ and the negotiation histories of established zones, an Arctic NWFZ faces a number of critical obstacles. Among these are geographic scope, transit, nuclear alliance ties, navigation rights, absolute reductions in nuclear weapons versus redistribution, uneven strategic sacrifices, platform for negotiation, verification and compliance and inclusion of NWSs and NSAs.

Conclusions

Proposals to denuclearize the Arctic span some six decades, arriving in different shapes and sizes yet all directed towards a common goal – to bolster peace and cooperation through ridding the Arctic of nuclear weapons. The

host of proposals outlined herein demonstrates the serious work that has been done to promote a denuclearized Arctic, and while substantive progress has been elusive, the endurance of these proposals, commentary on them and their continual revival are in themselves commendable achievements.

The number of Arctic-based proposals demonstrates that the circumstances turning states' attention to the Arctic have not been transitory, and such attention is poised to continue, if not intensify. Strategic stability as a foundation for cooperative governance must be nurtured and maintained. The disproportionate effects of climate change on the Arctic, the deteriorating international arms control environment and rising East-West tensions all bear on state relations in the Arctic. Within the context of the Arctic as an evolving security community, this can, and should, be seen as an opportunity for security growth and not necessarily a threat. The Arctic arms control proposals outlined in this review, including an Arctic NWFZ, remain on the table as viable options. The re-shaping of the Arctic in both security and environmental terms, and the unprecedented opportunities therein, legitimize a deep re-evaluation of these proposals.

As the foregoing analysis has outlined, an Arctic NWFZ would truly be unique. Not only would it be the first zone to include partial territories of sovereign nations, but it would also include the territory of two NWSs. Moreover, it would be the first NWFZ to include the entirety of an ocean and seek to seriously contend with the associated transit issues. Perhaps even more novel is that an Arctic NWFZ would go where no zone has gone before – to necessitate real reductions in the nuclear weapon arsenals of the NWSs, not simple redistributions. Such an advancement would be a watershed moment for NWFZs, as the concept would prove to not only contribute to non-proliferation but to disarmament as well. This would represent a true maturity in the concept and realization of NWFZs as tools for international peace and security.

While an Arctic NWFZ would be unique, it would still nonetheless have to contend with the same enduring issues that previous NWFZs have sought to address. Seeing that an Arctic NWFZ will rely heavily upon the legal precedents set by those zones that have gone before it, it should be no surprise that the proposed Arctic zone will struggle to deal with core issues present in all established NWFZs: namely, geographical boundaries, the transit of nuclear weapons through the zone, temporary stationing through port visits, verification and compliance, acquiring fully ratified negative security assurances and assurances that NWS will respect the denuclearized status of the zone.

Properly conceptualized, these issues are not definite stumbling blocks, but opportunities for pioneering to push the NWFZ concept forward so as to continue to its development as a true tool of non-proliferation, arms control and disarmament. Those contributing to the scholarly discussion over the past six decades have demonstrated a serious ability to creatively address enduring issues, develop new solutions and critically engage with one another towards a common end goal. If a new dawn of Arctic relations is upon us, then new life will certainly be breathed into these proposals. And, as with most Arctic-related issues, an Arctic NWFZ will predominantly affect the regional states but nonetheless have global implications.

The Arctic states have witnessed the stability that cooperation can bring to the region, but in the absence of an overarching institutional framework or security architecture with the mandate and competency to entrench the growing cooperative spirit and actions, then true stability, cooperation and security will remain fragile at best,

if not simply aspirational. A robust Arctic NWFZ, while not providing for all the necessary security measures, would be a strong foundational pillar to build a serious security framework for the Arctic and ensure a ripe environment for further cooperation. As Wallace has stated, the answer "lies in the power of a nuclear-weapon-free zone to turn a vicious circle into a virtuous one."[150]

Notes

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[1] This includes the 27 members of NATO that are non-nuclear-weapon states; Australia through the Australia, New Zealand, United States Security Treaty (ANZUS) with the US; Japan through the Treaty of Mutual Cooperation and Security with the US; South Korea through the Mutual Defense Treaty with the US; and Belarus and Armenia through their membership in the Russian-led Collective Security Treaty Organization (CSTO).
[2] Jens Stoltenberg, "Speech by NATO Secretary General Jens Stoltenberg at the 16th Annual NATO Conference on Weapons of Mass Destruction, Arms Control, Disarmament and Non-Proliferation," North Atlantic Treaty Organization, November 10, 2020, https://www.nato.int/cps/en/natohq/opinions_179405.htm
[3] For an up-to-date and comprehensive survey of the arguments for nuclear weapon abolition see: George Perkovich and James M. Acton, *Abolishing Nuclear Weapons: a debate* (Washington, DC: Carnegie Endowment for International Peace, 2009).
[4] George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn, "A World Free of Nuclear Weapons," The Wall Street Journal, January 4, 2007, https://www.wsj.com/articles/SB116787515251566636
[5] United Nations, First Committee of the General Assembly, A/RES 3472 B, December 11 (1975). https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/001/85/IMG/NR000185.pdf?OpenElement
[6] United Nations Disarmament Commission, "Report of the Disarmament Commission," A/54/42, May 6 (1999). https://s3.amazonaws.com/unoda-web/documents/library/dc54.42.pdf
[7] United Nations General Assembly, A/RES/53/77, January 12, (1999). https://documents-dds-ny.un.org/doc/UNDOC/GEN/N99/760/45/PDF/N9976045.pdf?OpenElement
[8] Hanna Newcombe, "A Nuclear-Weapon-Free Zone in the Arctic: A Proposal," *Bulletin of Peace Proposals,* vol. 12, no. 3 (1981): 252.
[9] Antarctic Treaty (1959), Article I. Article V prohibits "any nuclear explosions."
[10] Treaty of Svalbard (1920). (Originally the Spitsbergen Treaty).
[11] Special Report of the Conference of the Committee on Disarmament, "Comprehensive Study of The Question of Nuclear-Weapon-Free Zones In All Its Aspects," A/10027/ADD.1, (1976): 29-31. https://www.undocs.org/pdf?symbol=en/A/10027/Add.1(SUPP)
[12] Special Report of the Conference of the Committee on Disarmament, Vol. I, A/RES/S-10/2, (1978): 60. https://unoda-web.s3-accelerate.amazonaws.com/documents/library/A-S-10-2_Vol-I.pdf
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[14] A/54/42, (1999): 7-11.
[15] 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, "Final Document," NPT/CONF.1995/32 (Part I), (1995). https://documents-dds-ny.un.org/doc/UNDOC/GEN/N95/178/16/PDF/N9517816.pdf?OpenElement
[16] A/54/42 (1999).
[17] 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, "Final Document," NPT/CONF.2010/50 (Vol. I), (2010). https://www.nonproliferation.org/wp-content/uploads/2015/04/2010_fd_part_i.pdf
[18] NPT/CONF.2010/50, (2010): 22.
[19] Antarctic Treaty (1959).
[20] Partial Test Ban Treaty (1963).

[21] Renata Dawn and Chen Zak Kane, "The ways and means in which nuclear-weapon-free zones contribute to regional peace, stability and other political objectives," *United Nations Institute for Disarmament Research (UNIDIR)*, July (2020).
[22] Adam Shapiro, "Nuclear-weapon-free zones: a step towards nuclear disarmament?," *UN Chronicle*, vol. 41, no. 3, September-November (2004): 66.
[23] See for example the De-alerting Group's 2017 statement in the First Committee of the UN General Assembly: https://www.un.org/disarmament/wp-content/uploads/2018/11/statement-by-sweden-on-behalf-of-the-de-alerting-group-72-nw.pdf
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[25] The Russian Federation has increasingly taken issue with this, however, particularly criticizing the nuclear umbrella policy of NATO and calling into question whether it honours NATO members' obligations to the NPT.
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[27] Treaty on the Non-Proliferation of Nuclear Weapons (NPT), (1968): Article VI.
[28] NPT (1968): Article VI.
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[31] For an analysis of zonal disarmament see: Jay Orear, "Zonal Disarmament," *Bulletin of Atomic Scientists,* vol. 5, no. 3, (1963): 127-130. Or: Louis B. Sohn, "Zonal Disarmament and Inspection: Variations on a Theme," *Bulletin of Atomic Scientists,* vol. 18, no. 7, (1962): 4-10.
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[34] Arlene Idol Broadhurst, *Nuclear Weapon-Free Zones: A Comparative Analysis of Theory and Practice*, Aurora Papers: 5, The Canadian Centre for Arms Control and Disarmament, (1987):10.
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[38] Harald Müller et al., "A Nuclear Weapon-Free Zone in Europe Concept – Problems – Chances," *Peace Research Institute Frankfurt*, Working Papers No. 27, January (2016).
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[55] The Federal Constitutional Act for a Non-nuclear Austria, https://fra.europa.eu/en/law-reference/federal-constitutional-act-non-nuclear-austria
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[58] These protocols created legal commitments on behalf of the five NPT-NWSs to not use, threaten to use or station nuclear weapons within or against the zone.
[59] Treaty of Tlatelolco, Protocol I. This same formula was used in the Additional Protocols to the Treaty of Rarotonga and Pelindaba but with lesser success. The US has not ratified Additional Protocol I of the Treaty of Rarotonga, and neither France nor Spain has signed Additional Protocol III to the Treaty of Pelindaba.

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[61] Goldblat (2002): 218-219.
[62] Hamel-Green (2005): 5.
[63] Hamel-Green (2005): 6, notes that Indonesia had begun to develop a nuclear energy program in the late 1960s despite having large oil reserves.
[64] Rob Huebert, "A new Cold War in the Arctic?! The old one never ended!," in *Redefining Arctic Security: Artic Year Book 2019*, eds. L.H. Heininen, H. Exner-Pirot and J. Barnes, (Akureyri, Iceland: Arctic Portal, 2019): 75-79.
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[66] This meeting was requested via a letter to the President of the Security Council, dated 18 April 1958. United Nations, Security Council, S/3900, https://digitallibrary.un.org/record/629416
[67] United Nations, Security Council, S/3995, (1958). https://www.un.org/en/ga/search/view_doc.asp?symbol=S/3995
[68] Statements before and after the vote on S/3995 can be found in S/PV.817, https://www.un.org/en/ga/search/view_doc.asp?symbol=S/PV.817
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[103] Aerial confidence building measures included that simulated bombing missions in or across the Arctic Open Skies Zone in peacetime be prohibited, that adversary military aircraft be barred from the Air Defence Identification Zones covered by the Open Skies agreement, that military aircraft not carry nuclear weapons within the zone in peacetime, and that a common space-based surveillance radar system involving all of the circumpolar states be explored as a means of advancing multilateral security co-operation in the region. Naval arms control proposals included to achieve START limits on submarine-launched cruise missiles (SLCMs) or a total ban on SLCMs carrying nuclear warheads, the elimination of tactical naval nuclear weapons, and that naval forces be the subject of multilateral naval arms control negotiations.
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[121] Inuit Tapiriit Kanatami, "Circumpolar Inuit Declaration on Arctic Sovereignty," http://www.itk.ca/circumpolar-inuit-declaration-arctic-sovereignty
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[124] Ibid. 3.1.
[125] Ibid. 5.5. This would be a particularly important confidence building measure on the part of the US.

[126] Ibid. 3.2.
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