Present Military uses of the Seabed and Foreseeable Developments

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I. MILITARY INTEREST IN THE OCEAN FLOOR

The present and future uses of the ocean floor and its subsoil for military purposes add new and dangerous dimensions to modern strategy and foreign politics. Inherent in this new strategic situation is the danger of an escalation of the arms race to vast new areas of our globe, a development which is highly undesirable and dangerous. For a short period of time the armament of the ocean floor might entail a brief advantage to one superpower and thus create a possible disturbance of the balance of power between the superpowers with an ensuing threat to world peace. It is foolhardy to believe that there is such a technological gap between the superpowers or such flaws in their intelligence networks that any temporary imbalance in the armaments race on the ocean floor would not be speedily remedied. Thus, the "race" would represent unnecessary expenditures, channeling the limited funds and resources of the world away from more worthwhile purposes.

Other dangers and disadvantages are equally obvious. Strategic considerations would create pressures on the world's powers to challenge the doctrine that the deep ocean floor and its subsoil are not open for appropriation by individual states. Even without formal appropriation, it is reasonable to expect that the military uses of a certain area of the ocean floor would take precedence over the peaceful uses, thus hindering their economic exploitation. Although the areas to be used exclusively for military purposes might be of limited size while the free areas of the

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ocean floor would remain vast, it may be expected that the areas to be taken for military uses might be those which would also offer the easiest means of economic exploitation. Examples would be mountain ranges and underwater mountain peaks.

The use of the ocean floor and its subsoil for military purposes might likewise entail serious dangers for the traditional freedoms of the superjacent waters, navigation, and fishing. It has been maintained that one of the main advantages which the placement of arms or other military installations on or in the ocean floor offers is the cloak of secrecy with which such installations might be covered. Possibly this is true for minor installations which can be constructed without major efforts in terms of work and equipment on the surface. However, construction of major military installations might prompt the "owner state" to fence off the superjacent seas from normal use in order to protect or hide its military activities in the area.

Problems of frightening proportions would arise if nuclear armaments should be placed on or in the ocean floor. Aside from the increased danger of a nuclear holocaust in case of war, the emplacement of such weapons in the sea would always entail the danger of nuclear pollution of the oceans. Such concern is not unrealistic because experience has taught that although the technological achievements of man are seemingly unlimited, they are at the same time subject to accidents and unexpected human errors.

The importance which the great powers attach to the strategic possibilities of the ocean floor and its subsoil, including the continental shelves and the seabed of territorial waters, is demonstrated by the increased appropriations of funds for military oceanographic research. Such research is obviously not exclusively for peaceful purposes, but may contribute enormously to scientific and technological breakthroughs in relation to these areas of our globe and might thereby contribute greatly to the peaceful exploration and exploitation of the seas.

The importance which the superpowers attach to the ocean has clearly been stated in numerous official United States publications. One Presidential panel reported:

It is very possible that the kind of strategic offensive force we may wish to develop for the future will rely even more heavily on ocean-based systems than that which we now have. Such systems may very well require operations at a much wider range of ocean environment and for much longer times than at present. Thus, the need for oceanographic research and support of these weapon systems becomes even greater and will certainly have to encompass a wider problem area in development and maintenance of present submarine forces. These problems will range from ascertaining that the ocean-based systems cannot easily be compromised by an enemy's exploitation of some hitherto hidden effects of the ocean's environment, to development
of massive ocean engineering capabilities. It is likely that the Navy's involvement in oceanographic research to develop, support, and maintain our weapon systems will increase rather than decrease in the future and will include a more widespread range of problems than it currently does.

The essence of this statement is to suggest the increased use of the ocean floor and its subsoil for military purposes. As long as operative international agreements banning arms in these areas have not been concluded, the advisory panels and the military staffs of the world's powers will more and more vehemently advise their respective governments to invest in these vast military potentials.

The United States budget shows the tremendously increased interest which the United States is paying to the military aspects of the ocean floor. In the early 1960's, the appropriations of the Department of Defense for Oceanographic Research Programs were only a few million dollars. For fiscal year 1966, the appropriations for such research had increased to some $165 million. In fiscal year 1969, the United States will spend a total of some $516 million for oceanographic programs. More than half of these appropriations, $287 million, will be spent by the Navy. We may assume that similar increases take place in the Soviet Union, which has recently put enormous emphasis on strengthening and modernizing its navy, especially its submarine fleet.

II. PRESENT MILITARY USES

It is difficult to ascertain fully the extent to which the ocean floor and its subsoil have already been put to military uses, but it is an indisputable fact that the ocean floor today is being used to an increasing extent for military purposes. Indeed, this is one of the reasons why the United States proposed seabed arms controls that are conspicuously limited to the emplacement of fixed nuclear weapons and launching platforms for such weapons on or beneath the ocean floor. The United States seemed disinclined to accept a general prohibition of the use for military purposes of the seabed and subsoil.

The simplest military use of the ocean floor is the emplacement and anchoring of deep sea mines. Such mines can be applied for offensive as
well as defensive purposes. During World War II, numerous refinements in deep sea mining techniques were developed with little or no consideration given to the existing rules of international law concerning naval warfare.

The question of the application of deep sea mines in marine warfare has reached staggering proportions as a result of the possibility of using nuclear mines in the future. There is no doubt that such mines can easily be constructed if they are not already a reality. For defensive purposes, the mines might be of limited size because they probably would be installed in the waters adjacent to the home country. Nevertheless, the danger of pollution would be present. Nuclear mines used for offensive purposes would be much more dangerous weapons. Various theories have been advanced as to the use of such mines, besides destroying enemy ships. Located close to enemy shores, the detonation of large nuclear mines could create enormous flood-waves. The effect would be decisive if used against densely populated shorelines like the east coast of the United States.

The strategic advantages of nuclear powered submarines armed with missiles having atomic warheads and which can remain submerged for months at a time are many. The ocean affords maximum protection against detection and counter-attack. The submarines are not stationary, like land-based missile sites, and a surprise attack of the enemy would not be able to eliminate such submarines to the same extent as land-based missile sites. The distance to enemy targets is drastically reduced. It is estimated that an attacking intercontinental missile from shore to shore would cover the distance from Russia to New York or Chicago via the Arctic in some 30 to 45 minutes. A nuclear missile launched from a submarine could cut this time in half and greatly increase the surprise effect. The reduced distance would also heighten the missile's accuracy. Finally, it could increase the possibility of applying medium-range or short-range missiles, thereby increasing the missile arsenal considerably.

United States submarines armed with Polaris-type nuclear warheads and similar Soviet submarines have become "a fundamental building block for strategic forces." The Polaris-type submarines have the capability to rest on the ocean floor for extended periods of time, thus becoming a prototype for future launching bases on the seabed. However, underwater military installations have disadvantages, which the submarine force exemplifies. They are relatively expensive to operate compared to land-missile forces and they are presently limited in warhead size. Consequently, the ocean-based missile force could conceivably take some totally new direction of development in the future which might

6. See note 2 supra.
combine many characteristics of the landbased force, such as less expense, larger payloads, and better command and control, while retaining invulnerability, the characteristic of the submarine force.

In view of the heavy emphasis which the world powers have given to nuclear-powered submarines with nuclear arms, it must be considered that, short of total disarmament, the chances are minimal that such nuclear weapons (and perhaps other similar types of mobile underwater launching devices as well) will be outlawed in the foreseeable future.

The appearance of the Polaris-type submarines has resulted in new types of tracking and detection systems on the ocean floor. For example, navigational or meteorological aids to submarines and anti-detection systems have already been built. These various systems and devices were openly referred to during the debates in the United Nations Committee on the Peaceful Uses of the Sea-bed and the Ocean Floor.7

Views have been voiced to the effect that the deep ocean floor should either be declared “off limits” to detection and surveillance equipment, or that such equipment should be operated jointly by the superpowers or by an international organization.8 Such proposals are hardly realistic, since they presuppose an atmosphere of conciliation and détente which does not reflect the present international situation.9

Finally, the ocean floor can be used as a testing ground for nuclear weapons. Such nuclear tests have been undertaken by the United States, the United Kingdom, the Soviet Union, and France. The dangers inherent in such tests are evident, and have led the nations of the world to include in Article 1 of the 1963 Nuclear Test Ban Treaty10 prohibitions to the effect that no “nuclear test explosion or any other nuclear explosion” may take place “under water including territorial waters or high seas.”11 However, it is uncertain whether this prohibition also applies to underground explosions beneath the ocean floor. Article 1 of the Nuclear Test Ban Treaty should be interpreted in this manner, because of the wording and the clear intent of the Article.

Although a large number of states are parties to the Test Ban Treaty, it should be noted that important exceptions exist, such as France and Communist China, which expressed a certain determination to continue

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8. See note 1 supra.
11. For how the Mid-Atlantic Ridge—a mountain range extending from the Antarctic to the Arctic—divides the Atlantic into two regions and also how mountain peaks are strategically located in the Atlantic, see THE ATLANTIC OCEAN FLOOR, NATIONAL GEOGRAPHIC, June 1968, at 794.
such tests. The use of the ocean and the ocean floor as testing grounds for nuclear weapons may still be considered very much a reality.

III. FUTURE MILITARY USES

The deployment of military installations under the oceans will probably begin in the territorial waters and on the continental shelf adjacent to the coastlines of the superpowers. Thereafter, other sites such as undersea mountain peaks may be utilized.\textsuperscript{12}

A recent development in research vehicles with obvious strategic implications was the launchings in December, 1968, of the two small research submersibles Autec I and Autec II. They are being built to operate at water depths of up to 6500 feet.\textsuperscript{13} Recent news on underwater research projects seems to confirm that the United States may have developed a vehicle which can move on the ocean floor on wheels or tracks. In addition to their research capabilities such vehicles may be a first step in a new direction with regard to mobile nuclear weapons platforms. It is clear that the Soviet Union carries on similar research and has similar devices at its disposal. The review \textit{Hydrospace},\textsuperscript{14} for example, contains descriptions of a new Russian research submersible, the AMS 200, a deep sea self-propelled "laboratory" with accommodations for two observers. It is able to operate at water depths of up to 450 meters.

With today's technology it is possible to construct fuel and supply depots for submarines on surface vessels at depths of 600 meters. It is also possible that the superpowers in the near future will be able to construct supply depots of a general nature for their nuclear power submarines in distant areas of the main oceans and even create underwater recreational centers for their submarine crews. Such installations might take the form of emplacements on the ocean floor, but they might also be excavated into the ground. Dr. Carl Austin of the United States Naval Weapons Center, writes:

The building of communities for oceanographic research . . . is now within our grasp. Someday, and not a too distant day at that, we will see men and their families living and working beneath the oceans. The tools and technology exist today.\textsuperscript{15} Such installations could increase immensely the operational efficacy of nuclear submarines and add to the secrecy with which these submarines could operate.\textsuperscript{16}

\begin{itemize}
  \item \textsuperscript{12} Supra note 2, at 93.
  \item \textsuperscript{13} Supra note 4, at 5.
  \item \textsuperscript{14} \textit{Hydrospace} at 43-44 (1968).
  \item \textsuperscript{16} Supra note 4, at 6.
\end{itemize}
More dangerous are the prospects of having nuclear weapons emplaced on permanent or semi-permanent launching platforms or sites on or beneath the ocean floor. Such plans are currently being discussed. For example, in the 1966 Report by the Panel on Oceanography we read:

Such developments may, for example, take the form of missiles of Polaris size or even considerably larger placed on relatively shallow underwater barge systems on the Continental Shelf in a way which conceals their location and requires the system to move infrequently so that the potential of its being tracked by motion-generated noise is minimized. In addition one might consider a slightly mobile ocean-bottom system which creeps along. Systems of this kind, if they are ever to be realized, will require different kinds of marine engineering research from that which produced the current submarine-based force. Such systems can involve much larger missiles, might require underwater maintenance by personnel also located underwater, might entail development of new kinds of implacement gear for positioning missiles, might necessitate new kinds of detection and survival equipment to prevent attacks on the implacements, and so on.¹⁷

The construction of underwater sites excavated into the ocean floor in strategically situated underwater mountain peaks is also a distinct possibility, and has perhaps even reached advanced states of preparation.¹⁸

There might be advantages to such installations. Seabed missile sites might be less expensive to produce and maintain than missile-carrying submarines. They could be capable of storing greater numbers of missiles and missiles with larger payloads. Such underwater installations might be considerably less vulnerable to nuclear attacks. The shock effects of a nuclear explosion would be less because of the protection of the ocean itself. It might also be easier to keep the exact position of an underwater missile site a secret than similar sites on land. The dangers to the population centers near land-based launching sites might be reduced by moving the missile sites out to sea.¹⁹

Underwater missile installations might move the line of attack and defense much closer to enemy territory, increasing the surprise of atomic attacks and making an atomic defense shield installed on the ocean floor close to the shores of the enemy more effective. From a defensive point of view, the possibility of intercepting nuclear missiles over the ocean would be preferable to such interception over heavily populated areas where the nuclear debris from

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¹⁷. See note 2 supra.

¹⁸. See note 15 supra. See also 10 OCEAN SCIENCE NEWS 1, 2 (Jan. 1968). Dr. Robert Trosch, U.S. Ass't Sec'y of the Navy stated that, "future designs on sea-based deterrents following Polaris-Posseidon may take many forms. Underwater sites, for example, are a possibility." Trosch, MILITARY USES OF THE OCEAN, in SECOND CONFERENCE ON LAW, ORGANIZATION AND SECURITY IN THE USE OF THE OCEAN 4 (Ohio St. Univ. 1967).

¹⁹. Supra note 4, at 4-5 (describing hostile reaction in the Boston area to proposed nearby ABM sites).
the destroyed attacking missile might create almost as much havoc as a direct hit by the nuclear warhead itself.

In general, the use of the ocean floor for missile sites might enlarge and even totally change the geographical aspects of an atomic war. With the ocean floor at their disposal the power blocs might — almost without geographical limitation — surround each other with missile sites for offensive as well as defensive purposes.

IV. PROPOSALS BY THE SOVIET UNION AND THE UNITED STATES AS TO FUTURE MILITARY USES OF THE OCEAN FLOOR AND ITS SUBSOIL

It follows from the above discussion that any extensive armament of the ocean floor — especially the installation of nuclear arms — must be avoided. It is naive to assume that an armaments race on the ocean floor would create additional safety for one or the other of the power blocs — let alone for the world. On the contrary, the obvious result would be a frantic escalation of the armaments race leaving none of the world powers any safer and the world as a whole more exposed to the scourge of war. The two superpowers seem to have accepted these facts even though they may have considerable vested military interests in these areas of our globe.


The Soviet draft treaty contained in Article I, § 1, a strict prohibition of any military uses of the seabed and the ocean floor and the subsoil thereof beyond the territorial waters of the coastal state. The width of the territorial waters was defined as a 12 nautical mile limit. Thus the draft proposed that all areas of the ocean floor and its subsoil beyond 12 nautical miles from the coast should be neutralized. The prohibition

22. Id.
would affect the national continental shelves as well as the deep ocean floors and their subsoil outside continental shelves.

The prohibitions were directed against "use for military purposes." Although this terminology is not altogether clear, it was obviously intended to be a broad and comprehensive formula. Taken on its face value it seems to comprise military bases, constructions, and installations of any nature including surveillance, tracking, and detection devices. It also seems to include any type of military manoeuvres and activities on the ocean floor or its subsoil. Whether it was meant to comprise scientific research for military purposes or with military equipment is not clear. Nor is it clear whether the proposal intended to prohibit the temporary stationing of submarines on the ocean floor. As a whole, the proposal must be considered somewhat unrealistic in the present circumstances and was perhaps to some extent formulated for propaganda and bargaining purposes.

The second paragraph of Article I of the Soviet proposal makes it even more difficult to interpret the real meaning of the first paragraph. The second paragraph of the Article proposed the prohibition of certain types of military uses such as the prohibition against the emplacement "on the ocean bed and the ocean floor and the subsoil thereof" of objects with nuclear weapons or any other types of weapons of mass destruction and, further, the construction of "military bases, structures, installations, fortifications and other objects of a military nature." All of these activities would obviously fall under the general prohibitions of Article I, § 1.

Another weakness of Article I of the Soviet proposal is also that a prerequisite for its acceptance in the harsh realities of foreign politics is an effective international apparatus of control and inspection. Article II of the Soviet draft contained certain broad provisions as to verification and control. These provisions hardly satisfy even the most modest demands for effective control and inspection.

Article IV, paragraph 5 of the Soviet proposal contained provisions to the effect that a party could unilaterally free itself from its obligations under the treaty if extraordinary events "jeopardized the supreme interests of its country." In such a case the draft provided for three months notice to the United Nations Security Council of the termination of the treaty.

The American draft treaty of May 22, 1969 contained a considerably more modest approach to the question of disarmament of the seabed and ocean floor. The proposal seems to be a follow-up of the United States draft resolution of 1968 presented to the United Nations Ad Hoc Sea-Bed and Ocean Floor Committee. This draft resolution urged the conclusion of a verifiable and effective agreement which would prevent the emplacement of weapons of mass destruction on the ocean floor.23

The United States draft treaty was rather restricted in its scope. First, Article I was limited to the prohibition of planting or placing fixed nuclear weapons or other weapons of mass destruction or associated fixed launching platforms on, within, or beneath the seabed and ocean floor.

The formulation of Article I, §1, would leave states with wide possibilities and freedoms as to the use of the ocean floor and the subsoil for military purposes in the future. It contained no general prohibition against military uses as such, be it the installation of fortification, structures or other installations, or the holding of military manoeuvres. It obviously contained no prohibition against sounding devices, navigational devices, tracking devices and so on. It would also permit the use of nuclear armed submarines, including their temporary stay on the ocean floor.

Furthermore, the restrictions in Article I to fixed nuclear weapons and fixed launching platforms weaken the prohibitions significantly and make the interpretation of the draft article rather difficult. Actually this reservation might make the prohibitions almost meaningless if the term "fixed" is taken in an absolute sense of the word. Would, for example, a launching platform of the Sea Lab III-type which is constructed in a way so as to be easily removed be considered a "fixed" installation? Or what about a structure that would move—although with difficulty—by its own means on the ocean floor?

The United States proposal contained provisions identical to the Soviet proposal with regard to unilateral denunciation in cases where the supreme interests of the country were in jeopardy (see Article IV). The United States proposal further suggested that the prohibitions should refer to all areas of the ocean floor and subsoil beyond three nautical miles from the coast (see Article II).

Negotiations conducted through the summer and fall of 1969 in Geneva resulted in a joint U.S./U.S.S.R. proposal on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof, dated October 7, 1969. Though rather limited in scope, the draft proposal should be greeted as a significant step forward towards the non-militarization of the ocean floor.

The preamble to the draft treaty emphasizes that the draft must not be considered a final result, but only a step towards the exclusion of the ocean floor and subsoil from an armaments race. The sponsors express their determination to continue negotiations concerning further measures leading to this end. The preamble further expresses the conviction that the draft treaty constitutes a step towards a treaty on "general and complete disarmament under strict and effective international control."

24. Supra note 20, annex.
The prohibitions contained in Article I of the joint treaty are rather limited in scope. Thus the article deviates considerably from the general approach of the original Soviet proposal. On the other hand, the joint proposal must be regarded as a considerable improvement compared to the original United States draft proposal.

Under Article I, paragraph 1, the participants undertake the obligation "not to emplant or emplace on the sea-bed and the ocean floor and in the subsoil thereof ... any objects with nuclear weapons or any other types of mass destruction as well as structures, launching installations or any other facilities specifically designed for storing, testing or using such weapons."
The reference to "fixed" installations in the original U.S. draft has thus been deleted in the joint draft of October 7, 1969. This deletion is obviously a considerable improvement with regard to the scope and application of the treaty. But the temporary stay of nuclear armed submarines on the ocean floor does not seem to be affected by the new wording.

Article III of the joint draft has somewhat more detailed provisions on the verification and inspection problems than the previous drafts. Even so, the provisions contained in Article III are hardly satisfactory provisions for an effective international control of the compliance with the treaty.

Article II together with Article I provides that the draft will apply to the ocean floor and sub-soils thereof outside a narrow national band of waters. No express reference is made to the 12 mile limit or the 3 mile limit. But the 12 mile limit of contiguous zones provided for in the 1968 Geneva Convention is used as the main yardstick for the applicability of the treaty.

Article VI of the joint draft maintains the rather hapless possibility of unilateral denunciation of the Convention in cases where the supreme interests of a country are jeopardized.

It would be premature and even impossible to draw conclusions from these preparatory draft treaties as to what military uses of the ocean floor would be lawful and practicable in the future. The joint U.S./U.S.S.R. draft was submitted to the 24th General Assembly of the United Nations for consideration. It was hoped by many that the draft treaty would obtain a favorable reaction from the General Assembly in 1969, in view of the considerable advantages of having even a limited treaty prohibiting an armaments race on the ocean floor adopted at the earliest possible date.

The results of the deliberations in the United Nations First Committee in 1969 were that the discussions were postponed until the next General Assembly, as the joint draft was referred back to the Geneva Conference and to the United Nations Ocean Floor Committee. Certain delegations voiced their disappointment with the limited scope of the draft. Others
feared that the provisions concerning control and supervision were not sufficiently effective. Although a great number of states greeted the joint draft as an achievement of great international importance, it cannot be denied that certain resentment was felt, especially among the developing countries. The growing practice of the two superpowers to present their bilateral negotiations as faits accomplis to the rest of the world was looked upon by these countries with some concern.