Deadly presence in the deep

On 17 January 1955 the US Navy launched the first nuclear propelled submarine and with it opened the door to the silent secret spread of nuclear weapons and nuclear reactors to all the oceans of the world.

The quantum leap from diesel-engined subs to nuclear propulsion has given the navies of the USA, UK, France, China, and the USSR the ability to travel many times around the globe without the need to surface for air or to refuel.

They have taken the naval tradition of virtually autonomous operations to the point where they can initiate or participate in a nuclear war in any part of the world, without having to consult with their respective military or government leaders or the countries beside which they are positioned.

Secrecy

While the build-up of nuclear reactors and nuclear weapons on land has seen much opposition and discussion, the build-up at sea has continued silently and with increasing momentum. While there are approximately 370 nuclear reactors on land, there are over 500 at sea. No permission has ever been sought from the countries along whose coast these radioactivity-laden crafts routinely patrol. No information on the release of radioactive contamination through accidents or sinkings is ever revealed, even to the countries endangered by such events.

Within NATO there has been a shift of emphasis away from surface vessels towards submarine technology and submarine launched missiles. The US Navy reduced its fleet of surface vessels from 955 in 1960 to 450 in 1980, to the 188 in operation today. At the same time a series of new submarine designs were rapidly produced leading to the US' present complement of 121 nuclear subs. Since 1959 all subs produced in the US have been nuclear powered.

The Soviets on the other hand, had no significant navy at the end of the 1940s but have since built up a military fleet of 341 subs and 286 surface vessels with naval aviation back-up amounting to 585 craft.

By the 1960s Soviet sub design had more or less caught up with the US. The Yankee class sub with its 16 SS-N-6 missiles was roughly equivalent to the US Polaris. In 1978 the Soviets launched the world's largest sub, code-named the Oscar, a Typhoon class cruise missile vessel.

Missiles from the Deep

It was only 27 years ago on the 20th July 1960 that the first strategic missile was fired from a submerged submarine. It was a US Polaris A-1 missile with a range of 1,200 miles.

There are now over 15,700 nuclear warheads at sea. Over 5,000 are designed for a naval conflict, the rest to strike targets on land. A SLBM (submarine launched ballistic missile) is a multiple warhead missile initially designed for land but now adapted for sea. It may have up to 15 independently targeted warheads and it travels at 15,000 mph. It has the ability to hit targets 4,400 miles away, within approximately 30 minutes. Closer targets can be hit within 5 minutes.

The latest addition to the arsenals are submarine launched cruise missiles (SLCM) such as the US Tomahawk and the Soviet SS-NX-21 and SS-NX-24.

The negotiations aimed at reducing land based cruise and ballistic missiles have been widely publicised but there has been little public awareness that as the superpowers talk they are hastily increasing the numbers of submarine-based missiles.

By the early 1960s the US Navy were carrying out regular patrols with SLBMs throughout the Atlantic, the Mediterranean, and the Far East. Today they are present in virtually every ocean and accessible sea. Similarly, in 1967, the Warsaw Pact began routine patrols on both the East and West coasts of the US, with their Yankee class subs. Today they are undoubtedly as widespread as NATO.

Every city in the world is now within the range of submarine launched ballistic or cruise missiles.

Dangerous Guests

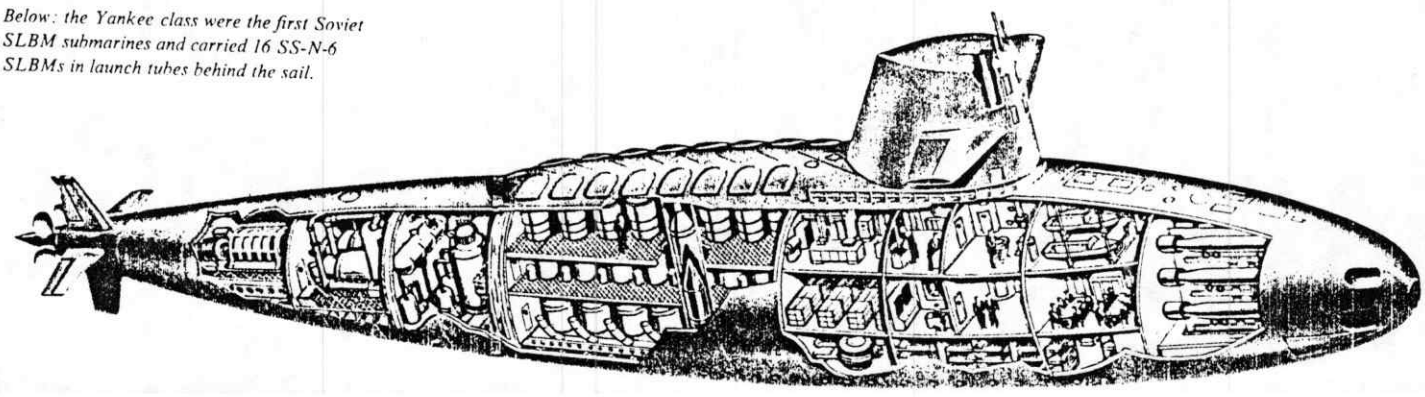
Submarines frequently visit the ports of neutral and non-aligned countries. All the US ballistic missile subs and 84% of their attack subs are 'nuclear-weapon-capable', and in the words of Retired Rear Admiral Gene R. LaRocque, "Any ship that is capable of carrying nuclear weapons, carries nuclear weapons....I have never known a nuclear-capable vehicle not to be so armed". Despite this it is US policy to 'neither confirm nor deny' the presence of nuclear weapons on these vessels. New Zealand's refusal to accept this policy led to strained diplomatic relations and economic pressures.

Nor is it likely that nuclear-weapon-capable vessels of the Warsaw Pact unload their weapons before entering port. They, like their NATO counterparts, routinely expose their host port to the risk of accidental atomic explosion or radioactive release.

If there were to be a major accident to a sub reactor while in port it would result in massive civilian casualties in the short term and severe health problems in the long term. Decontamination costs are estimated to range from 1.7 to 15 billion US dollars. These submarines have no insurance.

The reactors used to power subs are mainly Pressurized Water Reactors (PWRs),

Below: the Yankee class were the first Soviet SLBM submarines and carried 16 SS-N-6 SLBMs in launch tubes behind the sail.



originally designed in the US. PWRs have not been commissioned in the US since the Three Mile Island accident in 1979, but the nuclear navies of the world still continue to rely on this type of reactor.

On submarines, these reactors have no secondary containment. The cooling water is drawn from and returned to the sea. As the radioactivity from the reactor eventually contaminates the entire sub, it is likely that the released water is also mildly radioactive. In some circumstances this water is used as ballast and released when the sub is surfacing or entering port.

There are no regulations covering the discharge of radioactivity, nor is there any way of recording what has been released.

Military Hot Spot

Unfortunately for Ireland, a major area of military operations is along the Greenland-Iceland-UK gap. It is a logical avenue of attack for NATO forces and an equally logical area for Soviet forward defences.

It is the only western exit for the Warsaw Pact Baltic and Northern fleets. The NATO fleets have an airbase to the north in Iceland and to the south at Holy Loch and Faslane on the Clyde.

A quarter of the US ballistic missile subs are based at Holy Loch with Britain's 4 Polaris-Chevaline and 25 hunter-killer subs at the neighbouring Faslane base. Numbers for Warsaw Pact vessels are more difficult to quantify, but they are known to have a permanent presence in the area.

Up to the mid-seventies the nuclear submarines based on the Clyde tended to take the route along the northern coast of Ireland with their main exercise area north-west of Donegal.

In the past ten years however, there has been a major shift southwards into the Irish Sea. Prior to '72 the only routine sub activity appears to have been limited to diesel submarines produced and repaired at Vickers' shipyard in Cumbria, which used an area off the Co. Louth coast as an exercise and trial zone.

It now appears that not only is the Irish Sea used as a southern route out of the Clyde for nuclear submarines, but it also harbours up to 1/5 of the US nuclear weapons arsenal.

This change has resulted in increasing numbers of Warsaw Pact vessels entering the area. A semi-permanent spyship, similar to that stationed off the Antrim coast, is now based in the Celtic Sea.

A perpetual game of cat and mouse goes on among the subs of both military groups. Each side has had frequent accidents, ranging from mishaps and fires on board, groundings, fishing-boat sinkings, collisions with surface vessels, and at least one sinking by a Soviet sub. The sub which sank, a November class, went down in the south Celtic Sea in 1970 and is reputably leaking radioactivity from its reactor and missiles. Given the currents in the area it is likely that this contamination is sweeping along the southern shores of Ireland and the UK.

Tricks used to avoid detection include travelling directly beneath a large vessel such as a tanker or car-ferry. Another is to travel very close to the shore line. As a result of this tactic US subs have been grounded off the Tuskar Rock and have even had difficulties with Wicklow Head. One sub, the Nathaniel Green, returned to the US to be scrapped after three such accidents.

Nuclear Free Future?

Despite the bleak picture outlined above there is some cause for optimism. There is a growing trend towards the creation of 'Nuclear Free Zones' at local, municipal and national levels. Twenty-four nations have declared themselves non-nuclear . Eight of the 16 NATO members prohibit the deployment of nuclear weapons on their soil. Iceland and New Zealand have extended their ban on nuclear weapons to their territorial waters.

At the superpowers summit at Reykjavik in Iceland, Gorbachev requested that nuclear weapons at sea be included in the discussions and that the missiles dismantled on land not be relocated at sea. Unfortunately both of these points were rejected by Reagan, but hopefully they will be resurrected in the not too distant future. The reality of decommissioning and disposing of the earlier nuclear subs is gaining more and more prominence. There is nothing like a big heap of nuclear waste to concentrate the mind!

Nuclear Free Seas

Earthwatch is joining forces with Greenpeace and CND on a campaign to highlight the underwater nuclear activities. The objectives of the campaign are: 1) to exclude submarines from the Irish Sea before there is further loss of life or serious accident; 2) to have the Irish 12-mile territorial limit declared nuclear free (for both weapons and reactors); and 3) to include nuclear weapons at sea in international disarmament talks.

The initial part of this campaign will involve gathering information on sub accidents to date and the extent of submarine activity around our shores. A questionnaire is being circulated to sea-users as part of this process.

As in the '50s when Frank Aiken played such a prominent role by introducing the Non-Proliferation Treaty, we hope that the present government will lead a new initiative from nuclear-free countries to put a halt to the unacceptable activities of these weapon-laden floating reactors.

MARY O'DONNELL

Why worry?

There are four major reasons for concern:

1) **Accidents with surface vessels.**

Over 30 fishermen have lost their lives since 1980 in sub-related accidents in the Irish Sea. Many less serious accidents involved serious injury or the loss of boats or equipment.

2) **Accidents to subs can involve a major release of radioactivity.**

A nuclear-powered submarine's reactor contains approximately 1 billion curies of radiation, 20 times the amount released at Chernobyl. Five nuclear reactors have been abandoned at sea; 20 nuclear missiles have been lost; many hundreds of fires, explosions, collisions, and floods have been reported. In the event of a reactor accident aboard a submarine it would be impossible to contain the radiation, unlike at Chernobyl where 95% of the radiation was contained on the site.

If there was to be a release in a shallow, enclosed sea, like the Irish Sea, the fish, water, shore and air would be seriously contaminated for decades to come.

3) **Subs will be major nuclear targets in time of war.**

It is stated US strategy to destroy as many Soviet ballistic missile subs as possible in the first five minutes of a conventional war. The Soviets are thought to have a similar strategy. As submarines from both the military groups are permanently stationed around our coast we would be centre stage at the outbreak of a nuclear war. If a sub was hit, even by a conventional non-nuclear missile, it would result in massive radiation releases and the possible nuclear explosion of missiles on board.

4) **Submarines can unilaterally start a nuclear war.**

Military strategists are increasingly referring to 'nuclear war at sea'. Naval nuclear weapons are allocated for 'first use' by both NATO and the Warsaw Pact. Unlike the situation with nuclear weapons on land, NATO submarine commanders have the authority to use nuclear weapons "if threatened", without prior communication with superior officers.

The Secretary of the US Navy, John Lehman, has reported that 30-40 "potentially dangerous incidents" occur between the US and Soviet naval vessels per year. This involves situations where warheads are armed and subs manoeuvred in 'preparation for combat'. We do not know if some of these countdown situations occurred off our coast.

There is nothing to stop a nuclear war starting in the Irish Sea or in our territorial waters, either by design or by accident.