

“No cause for alarm”

In the last week of January this year a potentially catastrophic accident took place aboard the British polaris submarine Resolution while docked at the submarine base at Faslane, in Scotland.

The power supply to the coolant pumps of the submarine's nuclear reactor was accidentally cut off. The pressurised coolant water stopped flowing. Neither of the two back-up pumps was working. A further emergency supply from 'pony' motor failed to activate. Alarm bells sounded as the reactor began to heat up. According to Richard Webb, former naval officer in the reactor division of the US Atomic Energy Commission, the situation could have resulted in a smaller-scale Three Mile Island type accident or a mini Chernobyl. Radioactivity released could have contaminated an area of 2000 square miles. In the event, two crewmen managed to start up a diesel generator. The sub's nuclear reactor had come to within two to five minutes of a meltdown situation.

This event, which was kept secret for over three weeks until discovered by the Observer, is all the more frightening because every day British, American and Soviet submarines travel up and down the Irish Sea and play a secret game of cat and mouse with each other often using our coastal waters.

Wherever these submarines go they take their nuclear weapons and their reactors with them. Up to one fifth of the US nuclear arsenal can be in the Irish Sea at any one time. The peace time function of the NATO submarines is to patrol the northeast Atlantic. In time of war their mission is to destroy Soviet cities, and military and industrial targets.

To gain access to the Atlantic from their base on the Clyde, these subs pass by the northern coast of Ireland or take a southern track through the Irish Sea, a route which at times can take them within five miles of Dublin.

The top priority for these NATO subs is to remain undetected by the Soviets who attempt to track them with their own subs and surface intelligence vessels. Though submarines are rarely seen or heard as they pass through the Irish Sea they leave a deadly trail behind them.

Since 1981, the lives of 30 civilians have been lost in accidents which were directly attributable to submarine activity. Over the last five years there has been more than a dozen incidents in which trawlers have been sunk or have lost their nets because of an encounter with a submarine. An obsession with secrecy is often to blame for the danger surrounding their movement.

Submarines do not use active sonar as it would announce their presence to the "enemy." Instead submariners rely on passive sonar equipment which works more



slowly and less accurately. A submarine may have already tangled with a trawler before it is aware of the fishing boat's location.

Modern sonar sets can be very sensitive; an outboard motor dinghy may be detected two miles away before it is seen. However, in water, sound may travel in "corridors" and as a result of temperature gradient effects, there may be "silent" zones. This may result even in ships quite close not being heard. The danger of collision is great.

Security cover for the US and UK subs is also provided by "hunter killer" type submarines which are equipped with a towed sonar cable called TASS (Towed Array Sound Surveillance System). Some experts maintain that these cables can become ensnared in fishing nets and may be responsible for some of the trawler disasters.

The submarine may not even be aware of the entanglement until it is too late. Numerous incidents have been reported where trawlers were towed backwards for

miles. Some were lucky enough to escape with only the loss of their fishing gear. In other instances trawlers have capsized and fishermen have been killed.

This loss of life and vessels is a major scandal. But little has been done by the nuclear powers eliminate the danger.

A resolution passed recently by the International Maritime Organisation "recommends" that submerged submarines should keep out of the way of fishing vessels and their fishing gear unless the submarine is disabled. This does little more than acknowledge that the problem exists.

Safety rather than secrecy must become the first priority of submarines using the Irish Sea. Submarines in Ireland's territorial waters should be required to travel on the surface at all times.

But while accidents involving fishing boats have had tragic results, the potential for disaster as a result of a nuclear accident on a submarine is almost incomprehensible. One mistake could leave the Irish Sea completely contaminated with radioactivity for years to come.

Most submarines are powered by pressurised water reactors, the same type that was in use at Three Mile Island. However unlike at Three Mile Island, where the release of radioactivity was greatly reduced because of containment structures, the reactors on submarines are contained within relatively thin steel hulls. Therefore any collision involving a submarine is potentially disastrous.

In addition to this each American missile submarine carries sixteen Poseidon missiles: the equivalent of 10,000 Hiroshimas.

While the missiles themselves are unlikely to accidentally set off an atomic explosion, there could be a conventional blast from the explosives which are part of the warheads and the missile fuel. Such an explosion could easily rupture the submarine's reactor.

In 1986 a missile exploded aboard a Soviet submarine off the east coast of the United States. It is known that at least three crewmen died. When the sub was under tow three days later, it sank after its damaged hull filled with water.

The submarine went down with at least 15 nuclear weapons on board, each containing several kilos of plutonium and a complete nuclear reactor. The reactor had a radioactive inventory of approximately one billion curies, about twenty times the amount released at Chernobyl.

It is unlikely that the reactor remained undamaged following its impact with the seabed and the extreme pressures it encountered at that depth. But even if it was undamaged, once on the seabed, a reactor's intake may easily become clogged. This could lead to an explosion.

meltdown, and a massive release of radioactivity.

This radioactivity would inevitably rise to the surface and drift with the current till it eventually entered the food chain and resulted in widespread contamination. If such an accident were to happen in the Irish Sea, the entire body of water and the shoreline on both coasts would be contaminated for generations to come.

Dr. Jackson Davis, a professor at the University of California, has done an analysis of a theoretical meltdown in a submarine's nuclear reactor in the San Francisco Bay area.

He found that, even by conservative estimates, there would be thousands of casualties within the first year, and significant casualties every year following that for decades.

For an evacuation to be in any way effective, he found that it would have to be completed within one to two hours. This would be virtually impossible. The cost of decontaminating the surrounding land is unknown. However a US government report in 1986 indicated that in a worst-case situation, the cost could rise to 150 billion dollars, approximately one sixth of the annual US federal budget.

No one knows the exact number of accidents which have taken place involving nuclear submarines since the first nuclear powered vessel was launched in the mid 1950s. But we do know that they have run aground, sunk, suffered fires, floods, breakdowns and had regular collisions with other vessels; and there has been at least one reactor meltdown, five nuclear reactors abandoned on the seafloor and over 20 nuclear missiles lost in the oceans.

As mentioned in our last issue, EARTHWATCH is joining forces with Greenpeace and CND in a campaign to highlight underwater nuclear activities. EARTHWATCH is currently circulating a questionnaire to sea users in an attempt to catalogue sightings and determine the extent of submarine activity in the Irish Sea. The information gathered from this questionnaire will be used to build a case for the elimination of unnecessary submarine activity in fishing areas and shipping lanes.

Legislation is currently before the Dail to extend our territorial sea limit to 12 miles. EARTHWATCH supports this bill as it will enlarge the area of jurisdiction thus enabling us to better protect our coastline and natural resources. However, EARTHWATCH also feels that this legislation should be taken one step further. Irish territorial waters should be declared a nuclear free zone, free from both nuclear weapons and reactors.

Accidents so far

1960: Radiation leak in Soviet sub off the Kola Peninsula.

1963: USS Thresher, on sea trials off the New England coast went down and imploded, losing all 129 hands, after its reactor shut down. Tests have shown the presence of cobalt-60 at the site. Part of the wreckage was recovered in a covert operation disguised as a scientific expedition.

1967: A core meltdown and 'major radiation leak' aboard the Soviet icebreaker Lenin is believed to have killed up to 30 people, and rendered the ship too radioactive to use for over three years.

1968: USS Scorpion, nuclear powered attack submarine, sank in the Atlantic after a torpedo exploded. All hands were lost. Again, cobalt-60 traces at site.

1970: Soviet nuclear powered November class sub sank 350 miles south of Ireland at the edge of the continental shelf. The cause is believed to have been an explosion in a propulsion reactor. The vessel was scuttled after the crew refused to abandon ship; some crew members were lost, the remainder being rescued by a surface support vessel. A complete nuclear reactor, with a radioactivity inventory of around one billion curies (twenty times greater than the amount released at Chernobyl) also went down. A 'Dons' class surface vessel kept watch at the site until 1980. The results of this surveillance are not known.

1983, Summer: Soviet nuclear-powered submarine sank in the North Pacific. Ninety crew members killed.

1983 September: 100 miles southeast of Rosslare the 16-missile, nuclear powered USS Sam Rayburn, collided with illegally dumped nuclear waste barrels. The

collision sent shockwaves through the sub and it began to leak nuclear radiation.

1984 July: The USS Nataniel Greene loses a propellor off the Wexford coast and goes out of control. The sub shut off engines and surfaced. It was then joined by two auxillary vessels which towed the sub to its Holy Loch base. The sub was fully armed with Poseidon missiles.

1986: An explosion ripped through a SS-N-6 submarine-launched ballistic missile aboard a Soviet 'Yankee' class submarine, while it was in the Atlantic Ocean approximately 2,000 km southeast of New York. At least three Soviet crewmen died from the blast. Three days later, seawater flooded the damaged hull while it was under tow and the submarine sank to the bottom of the Atlantic.

A single one megaton nuclear warhead - or possibly two one hundred kiloton warheads - were ejected from the missile tube by the force of the explosion. At least 15 more nuclear weapons went down with the submarine, each containing several kilograms of plutonium. The impact of the hull striking the ocean floor - at an estimated velocity of 200 kilometers per hour - combined with the deep ocean pressure and the force of the original explosion, almost certainly damaged both the reactor's containment structure and the missile warheads.

1988 January: Reactor coolant accident aboard the British Polaris submarine Resolution while docked at Faslane, on the Clyde. Reactor came within seven minutes of a meltdown situation. Incident kept secret by the authorities until exposed by the Observer newspaper.

These incidents are only some of scores, possibly hundreds of environmental disasters caused by the five nuclear navies. Because the navies evade public scrutiny, little or nothing is known about most of these calamities.

WHAT YOU CAN DO:

-Write to your TD and local authority representative and let them know how you feel about this issue.

-Object to the presence of visiting warships in Irish ports especially those that are nuclear propelled.

-Support CND in their campaign for nuclear free ports.

-Fill in the EARTHWATCH questionnaire on sub sightings if you have ever experienced any such incident (questionnaires available from EARTHWATCH office).

-Support the EARTHWATCH campaign for nuclear-free Irish seas by sending a

donation. Every campaign costs money and every little bit helps.

The growing presence of submarines in our coastal waters not only puts the lives of Irish people at risk from accidents and collisions at sea but presents us with possibility of a major nuclear catastrophe off our coast. Such an accident would result in the long term contamination of the sea. The seas belong to us all. We must work together to make them safe.

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