

SEMAPHORE

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REPLENISHMENT AT SEA – A SIGNIFICANT FORCE MULTIPLIER

One of the least glamorous aspects of maritime warfare involves the underway replenishment of warships at sea and the logistic support of forces deployed ashore. It is also one of the most important. Even a short conflict can rapidly use up missiles, ammunition, fuel and stores at a prodigious rate. This is where afloat support becomes so vital.

Replenishment at sea is a significant force multiplier that extends the range and sustainment of both surface combatants and amphibious vessels with land forces embarked. Afloat support ships provide greater reach and endurance and allow self-reliant and sustained operations to be conducted away from a shore support base. This is particularly important when friendly countries might be disinclined to offer port facilities or, for force protection or political reasons, we would wish to reduce our footprint ashore. This afloat support capability, which enables warships to provide an ongoing presence and an immediate response to a developing situation, is vital for Australia, given our enduring geo-strategic circumstances and the fact that practically every conceivable operation must be conducted and sustained at considerable distances from Australian shore support.

For these reasons, and as noted in *Australian Maritime Doctrine*, a credible surface task group will always include an afloat support ship to provide logistic support. Without an afloat support ship to replenish fuel and other essential consumable stores ships are restricted to operating at distances no greater than their half-range from support. When constrained to this half-range, surface combatants are unable to conduct operations or remain on station for protracted periods before having to return for resupply. To achieve extended periods at sea, surface combatants must either have access to closer shore support or be accompanied by a replenishment ship. Given Australia's long coastlines, neighbouring archipelagic and island nations, sparse infrastructure, and minimal options for forward operating bases, afloat support empowers the Australian Defence Force (ADF) to conduct a range of independent operations that would otherwise not be possible. Even when shore support facilities or a forward operating base might be available within our region, their use would be subject to host nation agreement, which may well be denied in some circumstances. Furthermore, extended operations using surface combatants in areas where shore support is not available, such as the Heard and McDonald Islands fisheries zone, are not possible without a replenishment ship.

With suitable replenishment ships and the ability to resupply at sea, fighting units can remain on station for weeks at a time. As a general indication, a surface combatant supported by a replenishment ship is limited only by crew

rest considerations. Replenishment ships are not, however, just tankers. They are a 'one-stop logistic shop' and must carry several different cargoes concurrently in order to provide the full range of afloat support to surface combatants and task groups in order to increase both their range and sustainability. This not only includes diesel fuel, aviation fuel, oil and lubricants, but also dry stores including food, refrigerated and frozen stores, general stores and spare parts, water, and ammunition. Furthermore, a balanced and efficient onboard storage capability provides greater effectiveness, reducing the time required to replenish warships and increasing the time before the replenishment vessel itself must return to port to restock.



HMAS Westralia supporting Southern Ocean operations

In addition to their primary role of supporting maritime task groups in both open water and littoral operations, replenishment ships are also critical *joint* logistic assets necessary to sustain forces operating throughout the littoral in operations ranging from humanitarian support to warfighting missions. The latter operations will depend on the ability of naval forces to contribute to the protection of the joint force, provide and safeguard sustainment from the sea and protect the logistic bridge from the home base across the open sea and through potentially hostile littoral waters. Afloat support for these operations includes supporting land forces, forward operating bases, and any forward land-based resupply points. This capability was convincingly demonstrated during operations in East Timor in 1999. With their ability to carry large amounts of stores and to operate helicopters, replenishment ships are also well suited to provide humanitarian aid.

Despite technological advances, replenishment at sea, whether ship-to-ship or by helicopter, remains a routine but potentially dangerous and personnel intensive evolution. This complex task is carried out by the replenishment ship and receiving warship steaming side-by-side in close proximity, linked by fuel hoses and wires rigged between the two vessels, whilst simultaneously transferring stores by



helicopter. It demands great skill and the highest standards of seamanship, especially in rough weather and at night. However, the ultimate test in replenishment at sea, for both supplying ship and customer, is for a usually difficult exercise in peacetime to be carried out in time of tension or war, with ships faced with simultaneously carrying out replenishment while at a heightened state of readiness for action. In an *Anzac* class frigate for example, up to 20 of its complement of 165 are required as line-handlers at the receiving station to haul over the highline or spanwire and connect up to the replenishment at sea system. In addition, a significant number of people (up to 75% of the crew) are needed to close-up at various specialist stations and to manage and strike-down the ammunition and stores embarked, whether from another ship or by helicopter.



Underway Replenishment Ship HMAS Success

The Royal Australian Navy's current afloat support capability is provided by the underway replenishment ships HMAS *Success* and HMAS *Westralia*. The locally-built HMAS *Success*, which entered service in 1986, is a multi-purpose replenishment ship (AOR), which effectively combines the functions of a fleet oiler and stores ship. This very versatile ship is equipped with a flight deck and helicopter hangar. HMAS *Success* is capable of simultaneously replenishing two ships, one on each side, and concurrently by the embarked helicopter to both the receiving ships and other ships in company. Four main replenishment at sea stations are fitted, two of which have dual functions and can be used to transfer either fuels or solids, including ammunition. The less capable auxiliary fleet oiler (AO) HMAS *Westralia* was designed and built as a commercial petroleum tanker and modified by the British Royal Fleet Auxiliary for underway replenishment in 1979. Originally leased by the RAN in 1989, HMAS *Westralia* was purchased outright in 1994. Although it can carry some food and stores, its principal cargo is diesel and aviation fuel to refuel warships at sea. HMAS *Westralia* has transfer points for fuel, water and stores and is capable of replenishing up to two ships at a time. Both ships saw active service in the Gulf War in 1991 as part of the Multi-National Naval Force conducting operations in support of Kuwait, and more recently also provided valuable logistic support to INTERFET operations in East Timor.

Although the acquisition of new surface combatants and amphibious ships is important, being able to support them as part of the RAN's capability to deploy locally, regionally and worldwide, is also of crucial importance. A key issue in determining the number and capabilities of future replenishment vessels, is the issue of concurrent operations, often in geographically dispersed locations. A

replenishment vessel used to support the deployment, projection and sustainment of land forces would invariably be unavailable to replenish other, geographically dispersed vessels at sea. This is an important point because in addition to projecting and sustaining land forces, an operation in the littoral will often require surface combatants to conduct operations over a wide geographical area. These units will be required to undertake such diverse activities as shaping operations, patrolling choke points and escorting merchant vessels. In addition, surface combatants may also be required to concurrently conduct border protection operations, or even to participate in wider multinational and coalition operations in support of Australian national interests, all of which will also require replenishment at sea.

As part of the 2003 Defence Capability Review, the ageing and single-hulled HMAS *Westralia* will be replaced by a more modern, but similar, double-hulled commercial tanker. This will be purchased in 2005 and converted locally to an auxiliary fleet oiler, entering service in 2006. It is, however, envisaged that HMAS *Success* will be replaced by a multi-purpose afloat support and sustainment capability next decade. In addition, it is expected that the major amphibious ships to be acquired will also be capable of providing limited afloat support to accompanying ships, in addition to their primary role of landing and supporting a force ashore.

Rather than landing all logistic support for land forces on arrival in theatre, it is expected that the ADF will embrace a joint 'seabasing' concept in the future, tailored to our specific requirements but on a more modest scale than that envisaged by the US. This would see the retention of material such as ammunition and fuel onboard ships until such time that it was required ashore. This would reduce the footprint ashore and as a result, the vulnerability of stores dumps ashore, reduce reliance on host-nation support, streamline logistics resupply and provide flexibility for rapid redeployment or manoeuvre operations in the littoral. Afloat support and amphibious ships, supported by strategic sealift capabilities, will have a key role to play in providing sea-based logistic support to forces deployed at sea and ashore in the littoral.

Given the realities of Australia's geostrategic situation and recent Government priorities, an afloat support capability is essential. This capability will provide flexible response options to ensure that surface combatants and joint task groups are able to successfully conduct operations from and at sea for the protection, projection and sustainment of ADF land and air elements, as well as for the conduct of broader maritime operations in support of Australia's national interests.

WE HAVE MOVED!

Due to the closure of Defence Establishment Fairbairn, the Sea Power Centre - Australia has moved to a leased facility at Dairy Road, Fyshwick, ACT. New telephone contact details will be advised in future issues of *Semaphore*. In the meantime, we can be contacted at our new postal address:

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