

MARINE ENVIRONMENT OF THE EX-HMAS ADELAIDE DIVE SITE



The Ex-HMAS Adelaide Artificial Reef Project is an exciting initiative to create an artificial reef and dive site on the NSW Central Coast that will be a draw card for Australian and international visitors. The first of its kind in NSW, the Ex-HMAS Adelaide has not only been prepared to make it safe and attractive to divers of all levels of experience, but also to enhance the marine environment and provide educational and research opportunities.

Legislative framework

The Ex-HMAS Adelaide was gifted from the Australian to the NSW Government for the specific purpose of scuttling the ship as an artificial reef off the Central Coast of NSW. A comprehensive environmental assessment has been undertaken for this project in accordance with state and federal environmental legislation.

This included approval under the NSW Environmental Planning and Protection Act 1979 as well as obtaining an Artificial Reef (or Sea Dumping) Permit issued under the Environment Protection (Sea Dumping) Act 1981 from the federal Department of Sustainability, Environment, Water, Population and Communities (DSEWPC).

The environmental assessment was undertaken in accordance with Part 5 of the Environmental Planning & Protection Act 1979 and considered a variety of short and long term issues associated with the sinking of the ship. The environmental and socio-economic issues considered included:

- the physical characteristics of the seabed
- coastal and oceanographic processes
- flora and fauna impacts
- navigational safety
- water and air quality issues
- noise and vibration impacts
- visual and aesthetic impacts
- socio-economic impacts, including recreational and commercial fishing, surfing, boating etc

- areas of cultural or historical importance
- benefits to the Central Coast regional economy from increased tourism
- operational feasibility, diver safety and amenity

The environmental assessment was thoroughly reviewed and endorsed by representatives of the former Department of Environment Climate Change and Water, the Department of Industry and Investment, NSW Maritime, NSW Tourism, Gosford City Council, the University of Newcastle, the Central Coast Marine Discovery Centre, the Central Coast Community Environment Network and other stakeholders including the Surfrider Foundation. A copy of the assessment can be downloaded from http://www.hmasadelaide.com/environmental_information/environmental_assessment

From the outset, a significant focus of the project was to ensure the Ex-HMAS Adelaide was cleaned and prepared to the stringent standards set by DSEWPC to be issued the permit to scuttle the ship. Preparations were undertaken in close consultation with DSEWPC, who undertook a number of inspections during the preparation phase to ensure all requirements were satisfied.

Initial preparations by Department of Defence

Prior to the Australian Government handing the ship over to the NSW Government, initial preparations undertaken by the Department of Defence at the Royal Australian Navy's (RAN) Fleet Base included the removal of fuel and oils and potential environmental contaminants such as a number of electrical items containing PCBs.

In addition, a range of items were stripped to be used as operational spares for the remaining Adelaide class ships in the Navy's fleet including the missile launch unit, weaponry, electronic components, rudder, rudder stock, propeller hub, propeller blades, propeller shaft, tail shaft, both fin stabilisers, both auxiliary propulsion units and the sonar dome. Memorabilia and other historical items were also removed for future use by the Navy, RSL clubs, museums and the like.

Scuttling preparations

Following handover of the ship to the NSW Government in June 2009, the NSW Government engaged an experienced contractor to carry out a comprehensive cleaning process to ensure the ship met the stringent environmental and health requirements set by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPC).

In preparing the ship for scuttling the following activities were undertaken:

- Removal of all fuels, oils and greases (hydrocarbons); removal of other hazardous materials such as heavy metals, batteries and PCBs.
- Removal of part of the main mast so not to pose a navigation hazard.
- Making the ship safe as a dive site by removing machinery, non-structural partitions, hatches/doors, floatable material and other items that could create a diver hazard, entanglement or risk.
- Over 75 tonnes of electrical cabling was removed during the initial ship preparations, primarily to ensure it did not pose a future entanglement hazard to divers.
- Ship modifications to produce a safe and interesting dive site including cutting diver access holes into the sides of the hull; cutting holes in the floors and ceiling to allow extra vertical access between decks; cutting openings to allow light to penetrate; and sealing off areas where diver access should not be permitted for safety reasons.
- Cutting further holes for air to escape during scuttling; ballasting and finally setting cutting charges for the scuttling, which will cut further holes in the ship below the waterline to flood the hull and sink the vessel.

Throughout the preparation of the ship, regular inspections were conducted by DSEWPC and their independent expert consultants to ensure their stringent environmental and health standards were achieved.

Artificial Reef (Sea Dumping) Permit

In 2010, after the clean-up process was completed, DSEWPC issued an Artificial Reef Permit under the Environment Protection (Sea Dumping) Act 1981.

Original plans to scuttle the ship in March 2010 were halted after a community group called the 'No Ship Action Group' (NSAG) applied to the Administrative Appeals Tribunal to review the decision by DSEWPC to issue the Artificial Reef Permit.

After a comprehensive review process considering a large amount of expert evidence, the Administrative Appeals Tribunal handed down its decision on 15 September 2010, allowing the scuttling of the Ex-HMAS Adelaide as an artificial reef to proceed with some extra conditions relating to the preparation of the ship and environmental monitoring.

The Tribunal's additional conditions specified:

- the removal of 'all remaining wiring, including junction boxes, which might be associated with polychlorinated biphenyls';
- the removal of 'all canvas and insulation' from the ship;
- the removal of 'all exfoliated and/or exfoliating red lead paint'; and
- an extra two sites to be tested for lead in the existing environmental monitoring program set out in the Long Term Monitoring and Management Plan.

The Tribunal noted that:

- 'cabling and related equipment likely to contain PCBs has largely been removed from the ship...Although remaining quantities of PCBs are very likely below the level of significant concern, it is our view... that the process of removal should be completed before the ship is scuttled'.
- 'Overall we believe that all the information available to us [on lead] points to a conclusion that there is no risk of harm to human health or the environment'.
- 'The level of pollutants now aboard the ship is low, and those that remain are either in very low quantities of inert and unlikely to cause any environmental problem...'

A plain English summary of the Tribunal findings can be found at <http://www.hmasadelaide.com/publications>

The additional works to comply with the Tribunal orders were completed in March 2011. On a precautionary basis, all junction boxes and remnant wiring in electrical boxes, switches, power outlets and similar equipment were removed. Over 44 tonnes of insulation was removed, which took 25 truckloads to take away for safe disposal. Where there was paint behind the insulation, it was generally in good condition and only very minor amounts of exfoliated or exfoliating paint needed to be removed.

The ship was inspected by DSEWPC and its expert consultant to ensure compliance with all permit conditions, including the additional conditions set by the Tribunal.

Recycling and reuse

Where feasible, material stripped from the ship has been recycled or reused, including over 500 tonnes of copper, aluminium, stainless steel, and lead ballast.

As part of its review, the Administrative Appeals Tribunal considered whether it was better for the environment to recycle the ship for scrap metal as opposed to scuttling of the ship as an artificial reef. The Tribunal found that in the context of recycling, the scuttling of the Adelaide as an artificial reef is a reuse of the ship and is considered to be of a higher order than cutting up the ship to recycle as scrap metal. The Tribunal also concluded that the purpose of the scuttling – to create an artificial reef – is recognised by the Environment Protection (Sea Dumping) Act as a proper purpose and that 'there are benefits to the environment from the resulting marine habitats generated, as well as more general benefits to the community'.

Environmental Benefits of the Artificial Reef

Experience at other similar artificial reefs such as the ex-HMAS Brisbane has shown that the establishment of an artificial reef enhances the marine ecology of the area. The 2005 scuttling of the Ex-HMAS Brisbane off the Queensland Sunshine Coast resulted in algae appearing in the first week, followed by aquatic mammals (dolphins) in the second week, molluscs and arthropods (e.g. barnacles and crabs) in the third week and bony fish and cephalopods (e.g. squid) in the fourth week. Over the following eight months cartilaginous fish (e.g. rays), marine worms, marine reptiles (e.g. turtles) and echinoderms (e.g. sea urchins) were also observed. After 12 months, 21 attached marine species were recorded, 16 resident species, 17 frequent visitors and 40 species that occasionally visited the site (see www.epa.qld.gov.au).

Colonisation of the Ex-HMAS Adelaide by marine algae and bottom-dwelling invertebrates will, in turn, attract free-moving invertebrates and many fish species. The artificial reef created by the scuttling of the Ex-HMAS Adelaide will provide food and shelter for a number of species and it is expected to develop into an important habitat, increasing the biodiversity of the area. It will also provide educational and research opportunities for schools and universities, enhanced by links with the Central Coast Marine Discovery Centre located nearby in Terrigal.

Surfing breaks and beach

In NSW, our beaches and surf breaks are famous throughout the world and are part of the social and economic fabric of many coastal communities.

The potential effect of the artificial reef on the surrounding surfing breaks and coastal environment was part of the detailed environmental assessment for the project. The studies confirmed that there will be no measurable impact on swell conditions in the surrounding area, the shoreline or sediment movement in the bay.

Experts from the former Department of Environment, Climate Change and Water reviewed the coastal and oceanographic process studies that formed part of the environmental assessment. The concurrence of the former Minister for Climate Change and the Environment was subsequently provided under the Coastal Protection Act 1979.

Ongoing monitoring

A Long Term Monitoring and Management Plan has been prepared in accordance with the requirements to obtain the Artificial Reef Permit. Long term monitoring will include:

- the structural integrity, vessel stability and position of the scuttled ship
- sediment movement
- colonisation of the artificial reef over time by marine biota
- sediment quality and bioaccumulation studies

The results of ongoing monitoring will be reported to DSEWPC and made available on the project website www.hmasadelaide.com.



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