



Lord Howe
ISLAND BOARD

Environmental Guidelines for Boat Repair and Maintenance

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I. Introduction

I.1 Purpose and scope of the guidelines

The purpose of these guidelines is to support responsible boat repair and maintenance activities on Lord Howe Island and to manage the environmental risks associated with these activities.

There are no facilities or infrastructure in place on Lord Howe Island to assist the undertaking of boat repair and maintenance. These guidelines are to be applied as an interim measure, until such time as an appropriate slipway and bunding facility is installed.

Implementing the guidelines will improve environmental outcomes for the Island environment and marine waters.

The management actions described in these guidelines may not be applicable to all operations undertaken in the designated foreshore zones identified as 'Item 3' in the Lord Howe Island Local Environmental Plan 2010 Sheet 4.

I.2 Why the Guidelines are needed

Island wellbeing and tourism activities depend on the long-term health of marine resources and the ecological health of their supporting ecosystems.

Boat repair and maintenance activities, particularly the wastes that are generated from these activities, have the potential to affect the surrounding coastal environment, if not managed.

Many of the products used to clean boat hulls and decks contain toxic ingredients such as chlorine, phosphates and ammonia. Removal and application of antifouling paints releases toxic chemicals which may contaminate the water and bottom sediments. Harm may be caused by toxic paint chips, paint residues and other solid and liquid wastes containing heavy metals, acids, oil, hydrocarbons and marine pest species.

The guidelines recognize that repair and maintenance work in the designated areas is:

- of a low volume,
- undertaken in an open well ventilated environment,
- undertaken over a sandy substrate
- undertaken above the mean high water, and well back from the waterline

I.3 How to use the guidelines

The guidelines are to be used by:

- Boat owners and operators conducting boat repair and maintenance activities;
- Boat owners of visiting vessels undertaking emergency repairs;
- Visiting marine service contractors;
- Board officers involved in planning and regulation.

Part 2 of the guidelines gives a brief explanation of the environmental management issues which typically arise from boat repair and maintenance activities.

Part 3 recommends specific actions that will improve work practices and achieve better environmental outcomes at the nominated foreshore work zones.

Anyone undertaking boat repair and maintenance activities should reference Part 3 to identify the activities and practices that are relevant to their work.

2. Environmental Management Issues

The specific environmental management issues arising from boat repair and maintenance are described below. Most boat repair and maintenance activities have the potential to adversely affect aquatic plant and animal life. They may also threaten human health and environmental amenity. The greatest risk to the environment results from maintenance activities undertaken in the absence of adequate waste containment and management infrastructure and systems.

Management Issue	Description	Relevance to Lord Howe
Materials use and storage	A wide range of chemicals and other materials, many of which may be hazardous, are used in the maintenance and repair of vessels. Examples include fuels, oils, alkaline and acidic solutions, cleaning solvents, disinfectants, detergents, degreasers, rust inhibitors and antifouling paints. These materials need to be used carefully and stored securely to prevent leakage and spills.	Likely
Emergency response procedures	Materials and chemicals used onsite may cause injury or environmental harm in the event of an accidental leak or spill. It is important to have a clear and well understood emergency protocol to deal with such situations.	Possible
Boat haul-out, repair and maintenance area	In a poorly managed work environment, repair and maintenance activities can lead to environmental harm and contamination of groundwater, soil, air and the receiving estuarine/marine water and sediments.	Possible
Removal of antifouling paint	<p>Antifouling coatings are applied to prevent or inhibit the settlement and attachment of marine biota on to boat hulls. This is primarily achieved by the application of paints that continuously leach chemicals such as copper and/or other biocides that are toxic to hull foulants.</p> <p>In the past, tributyltin (TBT) was used for this purpose, but has been restricted in Australia since 1989 due to negative impacts on the marine environment. Modern antifouling paints mostly contain copper, in the form of either copper oxide or copper thiocyanate, together with a secondary antifouling agent such as diuron. Conventional antifouling paints contain biocides that are harmful to marine life.</p> <p>Non-toxic antifouling coatings, mostly based on silicone, have surface properties that reduce the strength of adhesion of antifoulants and ideally self-clean during vessel activity.</p> <p>The removal of antifouling paints results in paint debris, sludge, dust and other particles that may contribute to water, soil and air pollution and may be harmful to marine life.</p>	Likely
Manual and mechanical scraping, scrubbing and cleaning	Hull and deck sanding and scraping produces a range of solid wastes, including paint chips and dust that can pollute and contaminate air, soil, surface waters and bottom sediments. Conducting these activities outdoors increases the potential for pollutants to be dispersed into the environment by wind, rain or runoff. The accumulation of paint chips and other residues in soils and sediments can also lead to contamination.	Likely

Pressure water blasting	<p>Using water-based pressure cleaners to clean the exterior of boats has the potential to create an environmental nuisance and cause environmental harm. High-pressure water blasting also presents containment problems caused by the wide dispersion of biological and physical materials removed from the boat hull during the cleaning process. Pollutants and contaminants originating from pressure water blasting activities include:</p> <ul style="list-style-type: none"> • Chemicals and additives, including detergents, solvents, caustic or acids, used in the cleaning solution. • Materials removed from the cleaning surface including biological hull foulants, antifouling paint chips and sludge, dirt, oil and grease. • Compounds produced as a result of reactions between the cleaning solution and the materials removed from the boats. 	Likely
Abrasive blast cleaning	<p>Abrasive blast cleaning involves cleaning surfaces by using compressed air (dry blasting) or water (wet blasting) to propel hard granular particulate matter through a nozzle against the boat hull and/or other surfaces.</p> <p>Abrasive blast cleaning practices result in emissions, which may cause air pollution, soil and water contamination. Performing these practices near public places may also result in visual annoyance, dust and noise nuisances.</p>	<p>Unlikely</p> <p>Not considered further in these guidelines</p>
Removal of biological foulants	<p>Marine pests may be present on the hull of boats, in ballast tanks or in the internal plumbing of boats.</p>	Likely
Manual painting	<p>Painting boat hulls and applying topside coatings may result in the concentrated release of harmful vapours and liquids. Wastes generated by painting activities are considered hazardous where they contain solvents and/or heavy metals.</p>	Likely
Spray painting	<p>Spray painting involves the application of liquid and solid formulations that consist of paints, powder coatings, surface preparation products, removers, finishers, solvents and thinners. The environmental risks associated with spray painting include the release of volatile organic compounds and fine particles from overspray into the atmosphere and then onto soil and into water bodies.</p>	Possible
Fibreglassing	<p>Fibreglassing activities are a source of hazardous volatile emissions to the environment. Acetone (a solvent used to clean tools and other surfaces contaminated with resin) and styrene (the volatile component of the polyester resin) are the largest contributors of volatile emissions caused by fibreglassing activities. Fibreglass trimming, grinding, sanding and drilling activities may also give rise to air pollution in the form of dust and other particulate emissions.</p>	Possible
Welding and metal fabrication	<p>Welding activities may contribute towards air pollution and cause metal contamination of soil, runoff and estuarine/coastal marine surface waters through the generation of airborne dusts and the emission of fumes and smoke. Performing welding activities near public places may also result in visual annoyance and dust nuisances.</p>	Likely

Engine maintenance and repair	Engine maintenance and repair activities involve the use of oil, fuel and solvent that are potentially hazardous to human health and the surrounding environment.	Likely
Waste management	Boat repair and maintenance facilities may produce a wide range of solid and liquid wastes that are potentially dangerous to people, wildlife and marine life. Dangers to wildlife include the potential for ingestion of debris mistaken for food and/or death from entanglement. Human dangers include injury from stepping on discarded items and exposure to toxins. Marine water quality can be affected by pollutants in surface runoff, or groundwater infiltration. These pollutants may include sediment, nutrients, oils, grease, hydrocarbons, metals, chemicals, particulates and solvents. Pollutants discharged to the aquatic environment should be reduced to the maximum extent that is reasonable and practical, having regard to best practice environmental management. Other general waste impacts include reduced amenity of our shoreline.	Likely
Air quality management	Boat repair and maintenance activities may affect local air quality and cause air pollution by generating dust, fumes, and other emissions.	Unlikely. Low volume of works to be undertaken in open air. Not considered further in these guidelines.
Noise management	The emission of noise is considered to interfere with a person's enjoyment of the environment if it is unreasonable having regard to its volume, intensity or duration; and the time, place and other circumstances in which it is emitted. Noise carries long distances over water. Excessive and/or unreasonable noise emissions from activities such as grinding, sanding, cutting and the revving of engines can be a major source of disruption and annoyance to surrounding areas. Specific noise control measures or restricted hours of operation can ameliorate impacts.	Possible
Management of contaminated land	There is some probability that past and current boat maintenance practices have resulted in soil and sediment contamination at some boat repair or maintenance facilities. Any onsite excavation or construction needs to be carefully managed to protect human health and prevent further dispersion of contaminants.	Unlikely. Low volume of works undertaken annually over time.

3. Required Management Actions

Identifier	Action	Outcome
I	General	
1.1	<ul style="list-style-type: none"> ▪ Works must not impede jetty operations, public use of the boat ramp, or impact on access to or the use of the Jetty, Transport NSW/Marine Park or Marine Rescue sheds. 	<ul style="list-style-type: none"> • Commercial stevedoring and goods transport operations are not impacted by private works in the area. • Emergency response or public agency operations are not impacted by private works in the area.
1.2	<ul style="list-style-type: none"> ▪ Works must not unreasonably impede use of the foreshore reserve by other users. 	<ul style="list-style-type: none"> • There are opportunities for safe public access, use and enjoyment of the foreshore and boat ramp area.
1.3	<ul style="list-style-type: none"> ▪ Storage, repair and maintenance works are limited to: <ul style="list-style-type: none"> ○ A maximum of 7 days per vessel per operation in the short-term storage area adjacent to the boat ramp at Hunter Bay. ○ A maximum of 6 weeks per vessel per operation in the long-term storage area on Lot 152 DP 757515 <p>Applications outside these criteria will be considered by the CEO on their merits.</p>	<ul style="list-style-type: none"> • Commercial boat repair business are permitted only with development consent. • There is adequate access to the foreshore and ramp area for all boat users.
1.4	<ul style="list-style-type: none"> ▪ Owners must lodge the appropriate form at the LHIB administration prior to commencing works or storing their vessel. 	<ul style="list-style-type: none"> • The LHIB is indemnified against public risk • Obligations under part 5 of the <i>Environment Planning and Assessment Act 1979</i> are met.
1.5	<ul style="list-style-type: none"> ▪ Damage to or removal of native vegetation is not permitted. 	<ul style="list-style-type: none"> • Impacts on the foreshore environment are limited.
1.6	<ul style="list-style-type: none"> ▪ At the completion of the repair and maintenance works, the work areas must be cleaned up by the owner or contractor and wastes should be stored and disposed of in accordance with this guideline. 	<ul style="list-style-type: none"> • The significant scenic values and amenity of the foreshore is maintained and enhanced. • A safe public environment is maintained.
1.7	<ul style="list-style-type: none"> ▪ Tools, materials, equipment, chemicals and fuel are to be appropriately stored or removed from the site when not in use. 	<ul style="list-style-type: none"> • The significant scenic values and amenity of the foreshore is maintained and enhanced. • A safe public environment is maintained.
1.8	<ul style="list-style-type: none"> ▪ The working area is to be made safe and barricaded/signposted to discourage public access during works and the area restored at the completion of works. 	<ul style="list-style-type: none"> • Obligations under work health and safety laws in a public area are met

		<ul style="list-style-type: none"> • Risk to the safety of others and the environment is minimized.
1.9	<ul style="list-style-type: none"> ▪ Owners must lodge the appropriate form at the LHIB administration prior to commencing works or storing their vessel. 	<ul style="list-style-type: none"> • The LHIB is indemnified against public risk • Obligations under part 5 of the <i>Environment Planning and Assessment Act 1979</i> are met.
2	Chemical storage and handling	
2.1	<ul style="list-style-type: none"> ▪ Undertake work in a secure area over a surface impervious to leaks or spills. ▪ Have rags on site to mop up any spills ▪ Store as little as possible of the chemicals, hazardous and dangerous liquid materials used on site. ▪ Petrol, oil, chemicals, refuse or waste such as paper or rags contaminated with similar combustibles or pollutants shall not be discharged or thrown into the waters or upon the ground within the Marine Park. ▪ Refer to Safety Data Sheets for advice and information on handling all liquids and powder products used or stored on site. ▪ Ensure that all personnel responsible for handling chemicals are aware of the potential hazards of the materials they handle and implement safe work methods. ▪ Label directions for any paint, chemical or antifoulant must be followed, including requirements for disposal of leftover product and containers which must be disposed of at the waste transfer facility. ▪ Keep records of chemical application, including the application of antifouling paint and otherwise comply with the record keeping and other requirements of the <i>Pesticides Act 1999</i> and Pesticides Regulation 2017. 	<ul style="list-style-type: none"> • Work practices minimise the risk of harm to the community and the environment. • The <i>Protection of the Environment Operations Act 1997</i> is complied with (it is an offence to pollute waters) • Chemical, residue or particulate matter involved in or resulting from the construction, repair or maintenance of boats is captured, securely contained and disposed of at the waste management facility. • Exposure of people, wildlife, marine life and habitats to pollution, contamination and waste is limited. • The potential for waste materials to enter the surrounding estuarine/coastal marine waters is limited.
3	Boat washing	
	<ul style="list-style-type: none"> ▪ The following measures should be undertaken to prevent pollutants from discharging into the marine environment from the cleaning of boats and motors, engines or mechanical equipment: <ul style="list-style-type: none"> ○ Oil, fuel and dirt should be wiped from the engine as much as possible before cleaning ○ Outboard motors should be washed and rinsed in a work area away from the shoreline ○ Where possible, boat decks should be rinsed with water only. ○ It is recommended that environmentally sensitive detergents only (e.g. low phosphate, biodegradable) are used. ○ Boats with antifouling material applied to the hull may only be washed down over geofabric or tarp, or a bunding system if available. ▪ Liquid and solid waste is to be disposed of as per 10. Waste Management section 	<ul style="list-style-type: none"> • Contaminated wastewater runoff and other liquid and solid pollutants is prevented from entering surface water, groundwater, soil and marine sediments.

4	Hull cleaning and stripping <ul style="list-style-type: none"> ▪ Where possible, use mechanical or manual buffing and scraping methods in preference to pressure water blasting for hull cleaning, as solid wastes are less likely to escape and can be swept or vacuumed up for disposal. ▪ Fit sanders, grinders and other power tools with dust extraction and collection systems if possible ▪ Use water-based or biodegradable strippers, cleaners and degreasers. Chemicals should not be used where they can directly enter the water. ▪ Use phosphate-free detergents wherever possible and scrub with a soft brush to absorb the detergent. Use biodegradable spray-type cleaners that do not require rinsing. ▪ Read the manufacturer's Safety Data Sheet before deciding on a chemical cleaner. Chemicals that are toxic to humans are likely to also be toxic to marine organisms. ▪ Wherever possible, use hot water, rags or a brush instead of chemicals. ▪ Ensure that pressure water blasting activities do not create an environmental nuisance and avoiding pressure water blasting operations during windy conditions ▪ Paint removal activities should take place away from the shoreline and tarpaulins must be placed on the ground to ensure that the removed paint debris, sludge, dust and other residues are contained, collected and disposed of properly and do not enter any waterway or the waters of the marine park. ▪ Unless confirmed otherwise, it should be assumed that any removed antifouling coating is contaminated with biocides, may contain Tributyltin or lead based compounds, and should be handled and disposed of as contaminated waste. 	<ul style="list-style-type: none"> • Pollution prevention and control measures are adopted to avoid the release of contaminants into marine waters, bottom sediments, soil and air.
5	Application of paints including anti-fouling paints	
5.1	<ul style="list-style-type: none"> ▪ Tarpaulins/drop sheets should be spread under the entire boat work area to collect wastes and prevent paint drips and spills from entering the marine/land environment ▪ Where possible, manual painting using brushes and rollers is recommended in preference to spray painting methods. Refer to the manufacturers' directions when deciding on the application method. ▪ Antifouling paint and other chemical must be stored securely in labelled containers, applied over a tarped area and must not be sprayed during high wind. ▪ Before applying antifouling paints, consider using alternative technologies, particularly those that rely on the coatings physical properties rather than its toxicity to prevent fouling, if these technologies are appropriate for the vessel's speed and frequency of activity. ▪ Only use antifouling paints that have been registered for use in Australia by the Australian 	<ul style="list-style-type: none"> • Accidental spillage is captured. • Contaminated wastewater runoff and other liquid and solid pollutants is prevented from entering surface water, groundwater, soil and marine sediments.

	<p>Pesticides and Veterinary Medicines Authority.</p> <ul style="list-style-type: none"> ▪ Follow the antifouling paint manufacturer's specifications. ▪ Paint out excess paint onto an absorbent material such as an old rag or newspaper. Allow to dry before disposal. ▪ When using containers filled with water to clean water-based paint from brushes and rollers, allow the paint solids to settle by leaving the container overnight. Pour the water out onto the garden or grassed area in the morning and use an old rag or newspaper to wipe out the solids from the bucket. ▪ All paint waste, particularly antifouling paint waste, should be disposed of at the waste management facility. ▪ Ensure that spray painting activities are sensitive to surrounding foreshore users and that they do not result in visual annoyance or create an environmental nuisance. ▪ Spray painting must not be performed in high winds, and consideration should be given to erecting screening material to a height of two metres to arrest drift. 	
6	Removal of biofouling	
	<ul style="list-style-type: none"> ▪ Biofouling should be carefully removed to prevent contamination with paint chips and other hull coatings. ▪ Measures should be implemented to contain and dispose of biological material removed from vessels ▪ Do not return collected biofouling to the sea or any waterway. 	<ul style="list-style-type: none"> • Biofoul is captured and prevented from entering surface or marine waters.
7	Fibreglassing	
	<ul style="list-style-type: none"> ▪ Where practical, hand lay-up methods are recommended over spray gun applications as hand lay-up releases less styrene. ▪ Reduce the amount of grinding and sanding as much as possible by trimming with a knife or mechanical cutter when articles have solidified but not yet hardened. ▪ Securely wrap all sanding and grinding dusts, and seal contaminated and spent solvents in a container prior to disposal at the waste management facility. 	<ul style="list-style-type: none"> • Pollution prevention and control measures are adopted to avoid the release of contaminants into marine waters, bottom sediments, soil and air.
8	Welding and metal fabrication	
	<ul style="list-style-type: none"> ▪ Establish an isolated area for using oxy-acetylene torches and welders, away from combustible materials such as oils, grease and rubber. ▪ Conduct all metal cutting operations on a suitable surface and screen the area to minimise the horizontal dispersion of metal fragments and allow the sweeping or vacuuming of metal scraps and filings. 	<ul style="list-style-type: none"> • Work practices minimise the risk of harm to the community and the environment.

	<ul style="list-style-type: none"> ▪ Securely wrap all dusts and other grinding wastes prior to disposal at the waste management facility. 	
9	Engine maintenance and repair	
	<ul style="list-style-type: none"> ▪ Use a drip tray or groundsheet under the engine to collect oil, grease, solvents or detergents. ▪ Keep adequate supplies of rags and other absorbent materials for cleaning up small fuel and oil spills. ▪ Where possible, clean engine parts with a brush rather than with solvents or aqueous degreasers such as alkaline or caustic soda. ▪ Use water-based or biodegradable strippers, cleaners or degreasers wherever possible. ▪ Use a funnel when pouring fuel into drums or tanks or use hand pumps to remove fuel from drums. ▪ Drain oil filters before disposal 	<ul style="list-style-type: none"> • Adverse environmental impacts associated with engine service and repair activities are minimized.
10	Waste management	
	<ul style="list-style-type: none"> ▪ General waste and uncontaminated debris should be disposed of as per normal practice at the waste management facility (eg plastics, recycleables, scrap metal etc) ▪ Controlled (hazardous) waste must be collected in sealed, separate clearly labelled containers and disposed of in accordance with direction at the waste management facility. Controlled waste includes waste that is capable of leaching, or is toxic, corrosive, poisonous, flammable or explosive, such as: <ul style="list-style-type: none"> ○ Detergents, degreasers, brush cleaning fluids, solvents and acidic or alkaline solutions ○ Used used engine oil, lubricating oil, hydraulic and gearbox oil, volatile solvents, thinners and other hydrocarbons ○ Paint, solvents, paint scrapings, biofouling residues and antifouling paint residues containing metals such as copper, lead, zinc, tin and metalloids; or other substances such as tributyltin, diuron and diuron derivatives used in antifouling paints ○ Contaminated and spent solvents ○ Marine biota (bio-hazardous) residues ▪ Ensure there are enough drums and/or other containers for collecting and storing waste. ▪ Clearly label all liquid waste disposal drums with details of their contents and ensure that they are sealed prior to their disposal at the waste management facility. Notification in advance of disposal would be appreciated. 	<ul style="list-style-type: none"> • General wastes are disposed of in accordance with Lord Howe Island Board requirements. • Pollution prevention and control measures are adopted. • Release of contaminants into marine waters, bottom sediments, soil and air is avoided.
11	Noise management	

	<ul style="list-style-type: none"> ▪ Operate power tools within the hours 7:30am to 5:30pm. 	<ul style="list-style-type: none"> • Noise generated on the site is minimized • Impacts on the foreshore environment and users are limited.
12	Air quality management	
	<ul style="list-style-type: none"> ▪ Fit power tools with dust extraction and collection systems. ▪ Apply paints using rollers or brushes or airless spray guns in preference to compressed-air guns. Where spray painting cannot be avoided, use High Volume Low Pressure (HVLP) spray guns to reduce the amount of overspray, paint usage, the release of volatile organic compounds and subsequent odours. ▪ Regularly collect floor sweepings, dust, powder waste or absorbent clean up materials and place them in a sealed bag before disposing of them in a covered waste bin. ▪ Use wet/dry vacuum cleaners with dust filters for general cleaning of the work area floor surface rather than sweeping and hosing the surface down with water. 	<ul style="list-style-type: none"> • Chemical, residue or particulate matter involved in or resulting from the construction, repair or maintenance of boats is captured, securely contained and disposed of at the waste management facility.
13	Contaminated land management	
	<ul style="list-style-type: none"> ▪ Where land is potentially contaminated from past activities, earth works should only occur following an assessment of contamination levels by a qualified expert. ▪ Marine sediment in the near vicinity of boat repair and maintenance facilities should not be disturbed unless it has been demonstrated that it is safe to do so through analysis of contaminant concentrations. 	<ul style="list-style-type: none"> • Existing contaminants in soil and sediment are prevented from being remobilised into the environment during construction or development works.
14	Emergency response procedures	
	<ul style="list-style-type: none"> ▪ Familiarise with the location of the emergency spill kit and wall mounted extinguisher in the work area, and have a plan of action in the event of a fire, chemical and other spills, pollution incidents, damage to equipment and personal injury. ▪ Report all spills to the EPA 131555 and Lord Howe Island Board ▪ Keep and maintain spill clean-up equipment; rags, tarps, drums ▪ Contain and clean up spills or leaks immediately if it is safe to do so. ▪ Dispose of contaminated clean-up materials in accordance with the Waste Management section of these guidelines. 	<ul style="list-style-type: none"> • Boat owners can respond effectively to emergency situations which may threaten human and environmental health.

4. Boat Maintenance areas



