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# Guidelines for the Management of Artificial Reefs in the Great Barrier Reef Marine Park

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## What are Artificial Reefs?

The GBRMPA considers artificial reefs to be any structure that people build or put in place on the seafloor, in the

water column or floating on the sea surface for the purpose of either creating a new attraction for divers or to concentrate or attract plants and animals for the purpose of fishing.

Structures such as jetties, tourism pontoons, vessel moorings, submerged power or telephone cables, or water pipelines may create some similar effects, however, because they have a different primary purpose they are not considered to be artificial reefs for the purpose of these guidelines.

## Marine Park Approvals

Installation and operation of an artificial reef in the Great Barrier Reef Marine Park requires the permission of the Great Barrier Reef Marine Park Authority.

Depending on its scale and location, an artificial reef proposal may also need to be considered under the [Environment Protection and Biodiversity Conservation Act 1999](http://www.deh.gov.au/epbc/index.html) (<http://www.deh.gov.au/epbc/index.html>), the [Environment Protection \(Sea Dumping\) Act 1981](http://www.deh.gov.au/coasts/pollution/dumping/index.html) (<http://www.deh.gov.au/coasts/pollution/dumping/index.html>), or the [Sea Installations Act 1987](http://www.deh.gov.au/coasts/pollution/dumping/installation.html) (<http://www.deh.gov.au/coasts/pollution/dumping/installation.html>).

The GBRMPA works closely with the Department of Environment and Heritage (DEH) (<http://www.deh.gov.au/index.html>) to ensure these assessment and permitting processes are integrated; generally the GBRMPA would be the primary contact for this sort of project.

## Applying for a Permit

Any person or group (applicant) who wishes to install an artificial reef should:

- discuss their initial concepts, designs, alternatives and potential mitigation of impacts for any proposed artificial reef with the Great Barrier Reef Marine Park Authority at an early stage; and
- complete an application form and pay a Permit Application Assessment Fee (PAAF).

The Great Barrier Reef Marine Park Authority will assign a Project Manager to coordinate the assessment process and to be your primary point of contact.

The Project Manager will advise what category of assessment is likely to apply to the particular proposal, based on the scale of the proposal and the potential level of environmental impact. That is:

- Level 3 -medium risk or public interest, requiring public advertising or a Public Environment Report; or
- Level 4 - high risk or complex requiring Environmental Impact Statement.

The PAAF for these categories is currently (as of 2005) \$31,120 and \$84,040 respectively; these figures will increase in line with CPI. The applicant will also be required to fund the public advertising program and to prepare reasonable supporting material for public information as part of that program.

## Information Requirements

The applicant will need to supply all information necessary to assess the application in sufficient detail depending on the level of assessment required. We will prepare a Terms of reference for each specific artificial reef proposal. The Terms of Reference will explain the applicants information requirements and will include input from consultation with the applicant, other relevant Government departments, and relevant stakeholders. A generic "Supporting Advice Statement" is available as a guide to the level of detail and issues that must be considered.

## Time Frame for a Permit Decision

An artificial reef project is considered a major project and the assessment process is expected to include consultation and negotiation between the Great Barrier Reef Marine Park Authority and the applicant, other Government agencies, stakeholders and the general public. A major project, including public advertisement, normally requires in the order of six months to two years to complete.

Have a look at the [permitting process flow diagram](#) [  Acrobat Format 83.96KB ]

## Cost Considerations

When developing your business plan and budget for an artificial reef project you will need to consider the need to fund the following:

- payment of the permit application and assessment fee (PAAF);
- collation of relevant scientific and technical information;
- advertising of the proposal for public comment;
- operation of a Technical Advisory Panel;
- preparation (including clean up) of materials to be used to construct the structure;
- installation;
- environmental site supervision;
- bond;
- indemnity and insurance;
- monitoring;
- remediation of any environmental impacts or issues that arise; and
- the potential removal of the structure if necessary at the end of its useful life.

These costs will vary depending upon each proposal based on, for example, the scale and number of artificial reefs proposed and the proposed location of the reef/s, the sensitivity of the ecological communities in the area and the chosen location's current level of use by others.

## Applicant's Responsibilities

Careful consideration needs to be given to who the applicant(s) should be, particularly where individuals are making application on behalf of a community group. Care is required because:

- The legislation requires that the applicant is a legal entity, that is an individual person, a group of individuals or a company; and
- Once an application is made it must be followed through by the original applicant(s). Any proposal to change applicants would require lodgement of a new application.

**1.1** Any permit issued will be in the name of the applicants. The applicants will have responsibilities in relation to the artificial reef, including:

- To comply with all relevant laws and conditions of the permit;
- To meet all costs associated with the permit assessment and subsequent installation and operation of the artificial reef;
- To provide indemnity and adequate insurance cover against death, personal injury and property damage, and to take any action necessary to protect the environment and users of the Marine Park should any problems arise with the artificial reef; and
- As a precaution, the cost of removal or relocation of the artificial reef must be covered by a bond provided by the applicants, which is lodged with the Great Barrier Reef Marine Park Authority in perpetuity or until the artificial reef is removed from the Marine Park. The Great Barrier Reef Marine Park Authority may consider salvage quotes to remove the artificial reef as the basis for determining the amount of the bond. The bond amount will need to be reviewed from time to time (generally at the time for renewal of the permit) to ensure it keeps abreast of: inflation, costs for removal, and any other changes which may affect its appropriateness.

## Assessment and Management of Environmental Impact

**2.1** An artificial reef must be sited to avoid co-location with reefs, shoals or other similar natural structures and to avoid impacts on sensitive environments and conflicts with other uses of the Great Barrier Reef Marine Park. Buffer distances between an artificial reef and specific habitats and structures may be required.

**2.2** The Great Barrier Reef Marine Park Authority will consider cumulative impacts associated with artificial reef projects and consider the impacts of any artificial reef proposal, both individually and in combination, with all other proposed or permitted artificial reefs and other structures.

**2.3** An Environmental Management Plan will be required to detail the proposed installation and operation of the artificial reef.

## 2.4 An Environmental Management Plan must include:

- identification of potential environmental impacts;
- how activities will be managed to reduce these impacts;
- a monitoring program;
- emergency response plans including relocation or removal if the artificial reef becomes a hazard;
- management of common use;
- sinking/placement plan;
- operational plan; and
- any relevant issue-based plans.

2.5 The Great Barrier Reef Marine Park Authority may appoint a Technical Advisory Panel of independent experts to assess elements of any proposal it receives for an artificial reef that includes fishing of the artificial reef. If appointed the Technical Advisory Panel may advise the Great Barrier Reef Marine Park Authority on matters such as distance of separation of the artificial reef from natural reefs, potential impacts to ecosystem and biodiversity, and the suitability of, or modifications to, the artificial reef proposal. Members of the Technical Advisory Panel will be selected and contracted by Great Barrier Reef Marine Park Authority.

## Design

3.1 A risk assessment conducted in accordance with the Reef Infrastructure Guidelines: tourist pontoons CRC Technical Report No 39, 2002, should form the foundations of the design, construction and installation of an artificial reef.

3.2 The structure of the artificial reef must be appropriately designed and placed for its intended purpose, including, for example; stability, structural integrity, life span, corrosion resistance, maintenance, ease of removal, and ecological role and impact.

3.3 The design of an artificial reef and any associated mooring systems will need to be certified by a suitably qualified and experienced naval architect or professional engineer.

## Materials

4.1 Artificial reefs must be constructed of materials that:

- suit the objective of the artificial reef;
- are clean and are not toxic;
- will not easily fragment; and
- will not immediately, or through decomposition, harm or injure wildlife or affect the natural values of the Great Barrier Reef Marine Park.

For example, the structures must be free of greases, oils, chemicals, introduced marine pests, and easily broken or buoyant materials.

4.2 Materials used in the construction of an artificial reef must not have been recently (within 3-5 years) treated with toxic compounds such as anti-fouling paints containing TBT (tributyltin). The chemical properties and widespread use of TBT as an antifouling agent, have raised concerns over the risks it poses to both freshwater and saltwater organisms.

4.3 The materials proposed for installation of the artificial reef must be inspected and approved prior to the structure being installed in the Marine Park.

## Site Inspection/Monitoring

5.1 A detailed survey of the proposed site for the artificial reef will be required for consideration in the assessment. This site survey must include any adjacent ecological communities at significant risk of impact from the artificial reef – for example through their linkage by water movements and/or marine connectivity.

5.2 Monitoring of the installation and operation of an artificial reef may include site inspection and issue-based and reactive monitoring.

**5.3** Baseline monitoring may be required prior to installation of an artificial reef (this may require monitoring for several months or more to adequately establish baseline conditions for contentious projects).

**5.4** An Environmental Site Supervisor may be required during the installation of an artificial reef.

**5.5** A post-installation monitoring program may be required to confirm that the artificial reef is achieving its objective and not resulting in unacceptable impact.

**5.6** Monitoring of an artificial reef may require appointment of an independent Monitoring Consultant.

**5.7** The Monitoring Consultant and Environmental Site Supervisor must be funded by, but independent of, the applicant and without any conflict of interest.

## **Public Access**

**6.1** An artificial reef proposal must continue to allow for reasonable use of the area by not:

- unreasonably limiting access to the public or existing commercial users; or
- giving rise to resource allocation issues that are not consistent with the underlying zoning or the concept of 'reasonable use'.

This requirement may be addressed in a number of ways, for example, provision of a mooring(s) for public use may be a suitable approach.

**6.2** The information provided in support of the application will need to address how the applicant proposes to manage public access issues, including potential conflicts and/or resource allocation issues whilst having regard to the underlying zone objective.

## **Safety**

**7.1** The permittee is responsible for ensuring that they take all appropriate measures to address the safety of life and property in accordance with applicable laws relating to navigation of vessels, occupational health and safety etc.

Note: a range of other legislation applies to safety of navigation and occupational health and safety. Proponents will need to contact relevant Commonwealth and State departments to obtain information on their requirements.

## **Location**

**8.1** The location of an artificial reef must not conflict with zoning objectives, Plans of Management, or other management measures in the Marine Park. It is unlikely that an artificial reef for fishing or diving will be permitted in the Buffer Zone, the Scientific Research Zone, the Marine National Park Zone or the Preservation Zone.

**8.2** The artificial reef must only be placed in an area that:

- will minimise environmental impact - for example, artificial reefs are to be placed only on superficially bare, low relief areas like sand, soft sediment or coral rubble - not on live coral or other high priority benthic communities;
- is sufficiently removed from natural coral reef, shoal or other structured habitat areas so as to reduce the attraction of fish away from natural areas;
- provides safe and convenient access to the intended users;
- enables sensible enforcement options;
- is sufficiently isolated from other uses - for example, trawling grounds, navigation areas, research, tourist programs etc; and
- in sufficient water depth and at a location to prevent navigation hazard and the movement/fragmentation of the artificial reef under expected long-term weather conditions at that site.

## **Sinking/Placement Plan**

**9.1** A plan detailing the process for installation of the artificial reef addressing possible affects on the environment and the well-being of Marine Park users at the sinking site, must be prepared by the applicant and approved by the

Great Barrier Reef Marine Park Authority prior to the installation of the artificial reef.

## Operational Plan

**10.1** A plan detailing how the artificial reef is to be maintained, operated, funded, and managed and how all associated activities will be conducted must be prepared by the applicant for approval by the Great Barrier Reef Marine Park Authority prior to the installation of the artificial reef.

**10.2** Codes of Conduct or Memoranda of Understanding between user groups will be required if there are matters of common use that require consideration.

## Further Information

The Commonwealth Department of Environment and Heritage is currently developing national guidelines for artificial reefs. In the intervening period before those guidelines are completed, guidelines for vessel cleaning and sinking are available from other countries, some of the most commonly cited examples are:

- IMO Specific Guidelines for Assessment of Vessels;
- IMO Specific Guidelines for Assessment of Platforms or Other man made Structures at Sea;
- Disposal of Vessels: Applying for an Ocean Disposal Permit under the Canadian EPA (1999); and
- Coastal Artificial Reef Planning Guide (Atlantic and Gulf States Maine Fisheries Commission).

## Web links

There are a number of web sites and documents available on the web that discuss artificial reefs or relate to those that have been installed elsewhere around Australia, here are some links for you to explore:

- [Reef CRC Literature review](#) on the potential effects of AR on the GBR
- [Cochrane's Artificial Reef](http://www.badarai.asn.au/) in QLD
- Ex [HMAS Perth](http://www.hmasperth.com.au/home.html) in WA
- Department of Primary Industries and Fisheries [FAD's](http://www.fisheries.nsw.gov.au/recreational/fads) in NSW
- Ex [HMAS Hobart](http://dive.southaustralia.com/best_dive_secrets.html) in SA
- Ex [HMAS Brisbane](http://www.epa.qld.gov.au/about_the_epa/coming_events/sink_the_brisbane/) in QLD

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